# DN SERIES 1US5 SHOP MANUAL

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# INSTALLATION

1. Position cabinet at desired location.
2. Adjust leg levelers so cabinet is balanced correctly.
3. Plug the machine into a 120 volt outlet.
4. Open the front service door.
    a. If the game was pre-installed at the factory, proceed to line 9.
5. Place cassette tape in the cassette deck. See Figure 1, game package installation.
6. Install key module. See Figure 2, game package installation.
7. Adjust dipswitches to desired settings. See Figure 3, and please refer to the game package dipswitch setting sheet.
8. Install game top flashing.
9. Turn power switch on, located at the front of the machine.
10. Allow 2-3 minutes for the game to load the memory.
11. The game is now ready for operation.*

* If the game has any irregularities, refer to the system trouble shooting guide on the next pages.



Figure 1

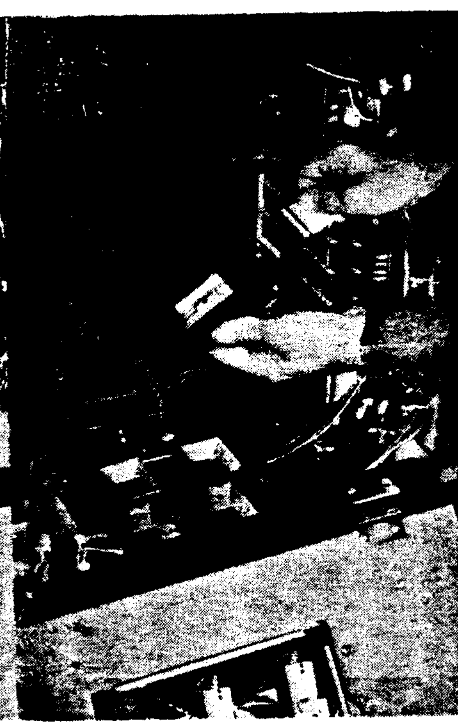


Figure 2

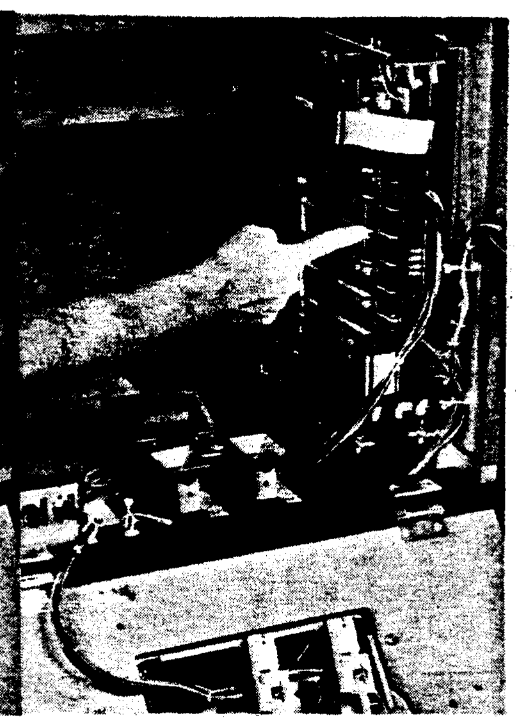
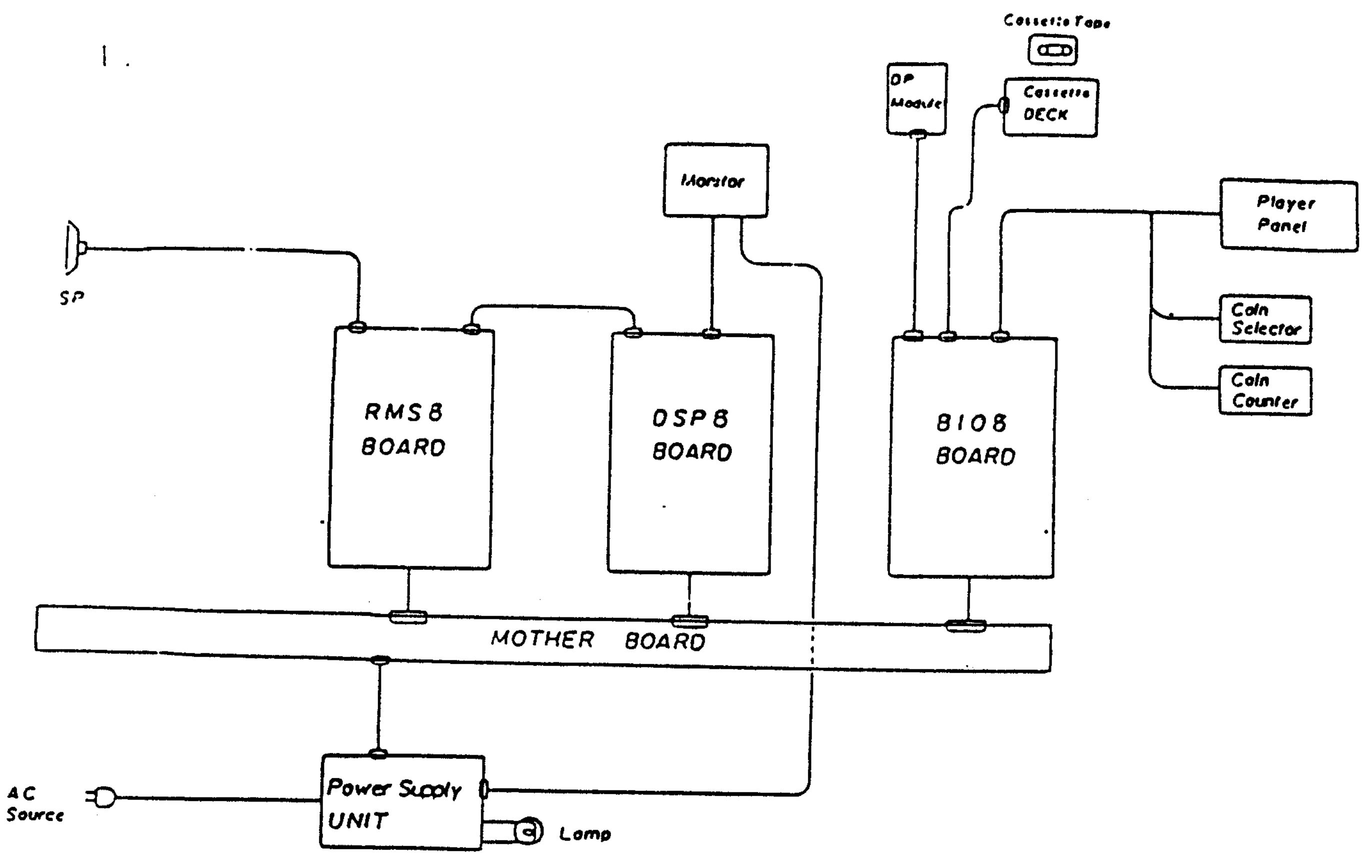


Figure 3

1. FUNCTIONS

THE THREE PCB'S DO NOT FUNCTION AS A GAME UNLESS TAPE PROGRAM IS LOADED TO THE PCB'S.




STRUCTURE Fig. 1

## 2. INDIVIDUAL FUNCTION OF EACH BLOCK

**DSP 8**

1) CONTROL CPU AND ITS RELATED CIRCUIT

2) COLOR SIGNAL GENERATOR AND CONTROL

3) STANDARD PATTERN GENERATOR AND TIMING SIGNAL GENERATOR

   * CPU CLOCK
   * STROBE SIGNAL
   * DYNAMIC RAM TIMING SIGNAL

4) CRT TIMING SIGNAL GENERATOR

   * HORIZONTAL
   * VERTICAL
   * SYNCHRONIZE

5) DISPLAY CONTROL

   * MISSILE GENERATOR AND CONTROL
   * MIXMODE GENERATOR AND CONTROL
   * MAIN GRAPHIC GENERATOR AND CONTROL

**RMS 8**

1) DYNAMIC MEMORY (48 K BYTE)

   * PROGRAM
   * DISPLAY

2) SOUND

   * CPU
   * ROM/RAM
   * SOUND CHIP
   * MIXING
   * COMMUNICATION WITH MAIN CPU

3) RESET SIGNAL GENERATOR

4) DIP SWITCH READING

5) BOOTSTRAP ROM

BIO 8

1) CONTROL PANEL SWITCH INPUT READING

2) COIN SWITCH ACTIVATION READING AND COIN COUNTER DRIVE

3) NMI GENERATION FROM SERVICE/COIN SWITCH ACTIVATION

4) VOLUME INPUT AD CONVERSION

5) BACK DISPLAY CONTROL

   * READING/WRITING PUNCTION FROM CPU TO MEMORY
   * HEAD LIGHT MODE
   * DISPLAY HORIZONTAL/VERTICAL SHIFT

6) CASSETTE DECK INTERFACE

CASSETTE DECK

1) GAME PROGRAM LOADING

DC POWER SOURCE

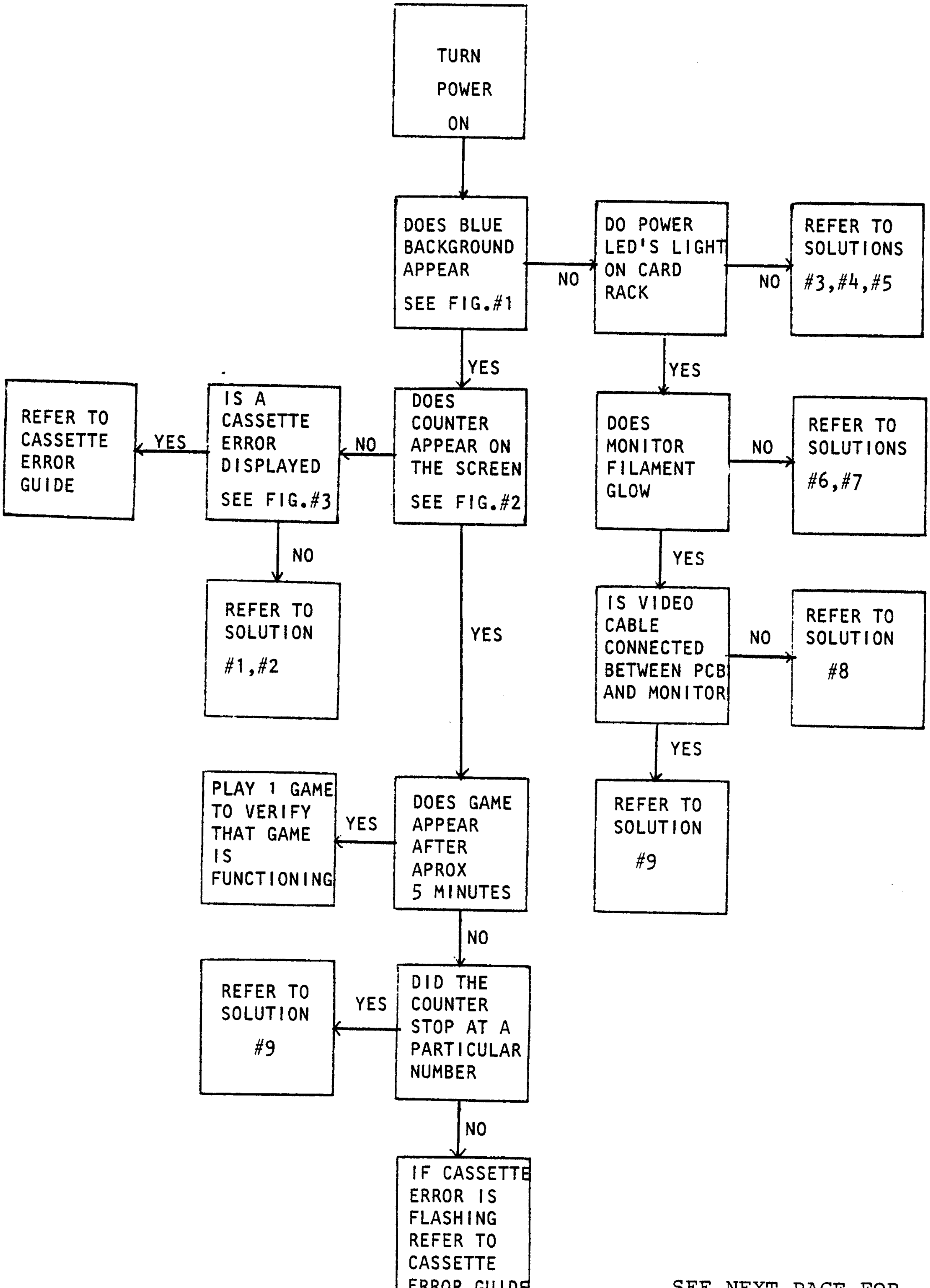
1) SWITCHING REGULATOR

| | |
|---|---|
| +5V (REGULATED) | 6A |
| +12V ( " ) | 1A |
| +13V (UNREGULATED) | 2A |
| -5V (REGULATED) | 0.1A |

IF REGULATED +12V, 3A COMBINATION IS USED IT ALLOWS +13V UNREGULATED POWER USE.

DECO CASSETTE SYSTEM

TROUBLE SHOOTING GUIDE




SEE NEXT PAGE FOR SOLUTIONS

## OPERATING PROCEDURES, SOLUTION GUIDE

### SOLUTIONS

#1 CHECK DIP SWITCH SETTINGS

SETTINGS MUST ALWAYS BE

| | | | |
|---|---|---|---|
| DIP SW I | 5.OFF | 6.OFF | |
| DIP SW II | 6.ON | 7.OFF | 8.OFF |

#2 CHECK KEY MODULE CONNECTION

#3 CHECK FUSES

#4 CHECK AC INPUT TO SWITCHING REGULATOR 100V.AC AND DC OUTPUT +5, -5, +12

#5 ASSURE POWER IS CONNECTED TO CARD RACK

#6 CHECK MONITOR POWER CONNECTOR FOR 100V.AC

#7 CHECK MONITOR FUSES

#8 CHECK VIDEO CONNECTOR

#9 EXCHANGE PCB'S

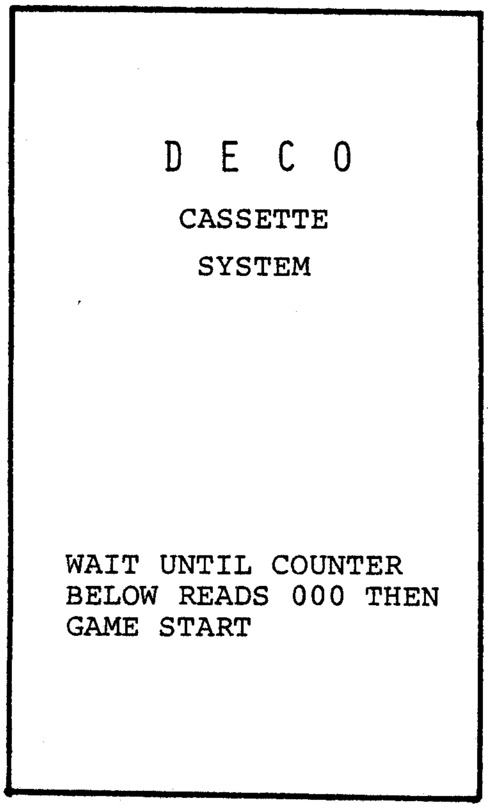



FIGURE #1

BLUE BACKGROUND

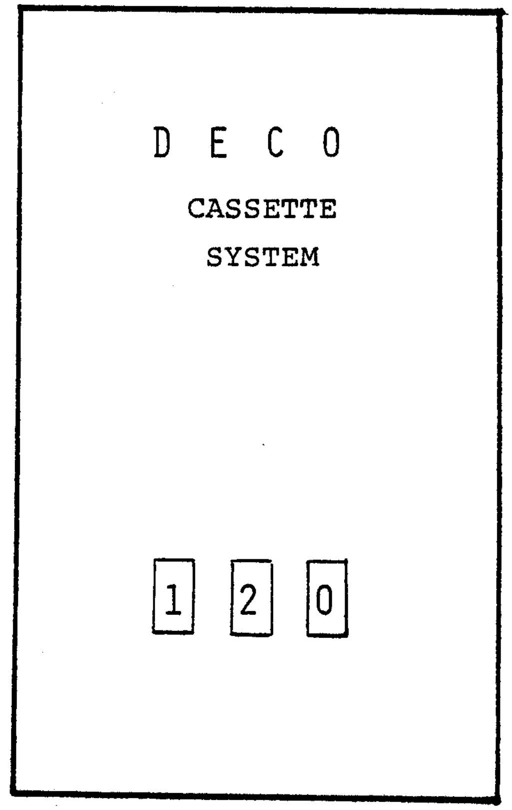



FIGURE #2

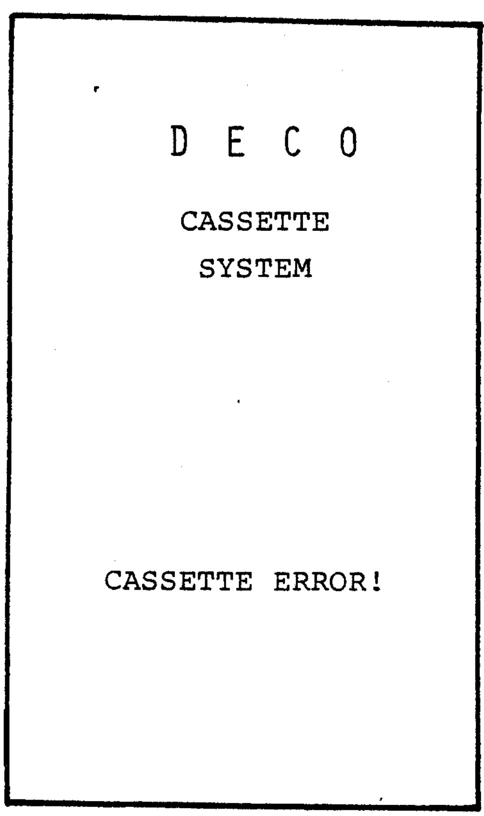
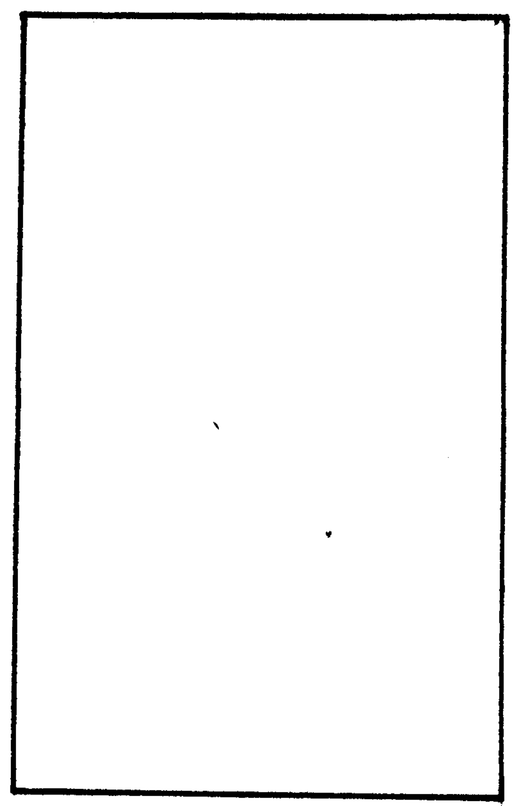



FIGURE #3

REFER TO ERROR GUIDE #59



CASSETTE ERROR GUIDE

| ERROR CODE | SOLUTIONS |
|---|---|
| 01 | 1,8,9,3 |
| 02 | 3,4,5 |
| 03 | 3,4,5 |
| 04 | 3,4,5 |
| 32 | 2,3 |
| 33 | 5 |
| 52 | 8,9,4 |
| 58 | 3,4,5 |
| 59 | 6,7,8 |

CASSETTE ERROR SOLUTIONS

#1 CHECK THE TAPE AND MODULE GAME NAME TO INSURE THEY ARE PROPERLY MATCHED.

#2 CLEAN THE TAPE DECK HEAD WITH ALCOHOL AND COTTON SWAB

#3 CHANGE THE CASSETTE TAPE

#4 CHANGE THE CASSETTE DECK

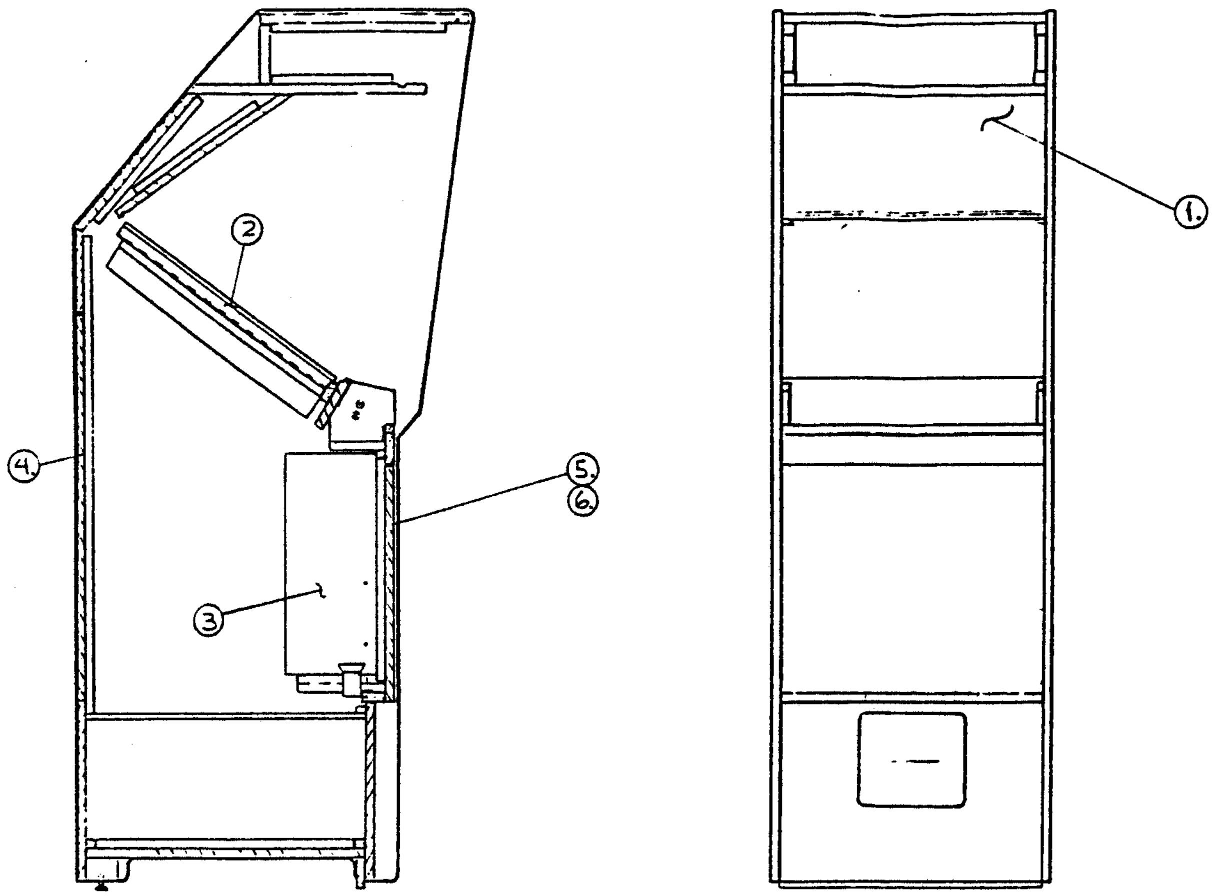
#5 IF THE ERROR PERSISTS CHANGE THE BIO-8 BOARD

#6 CHECK THE TAPE DECK CONNECTOR

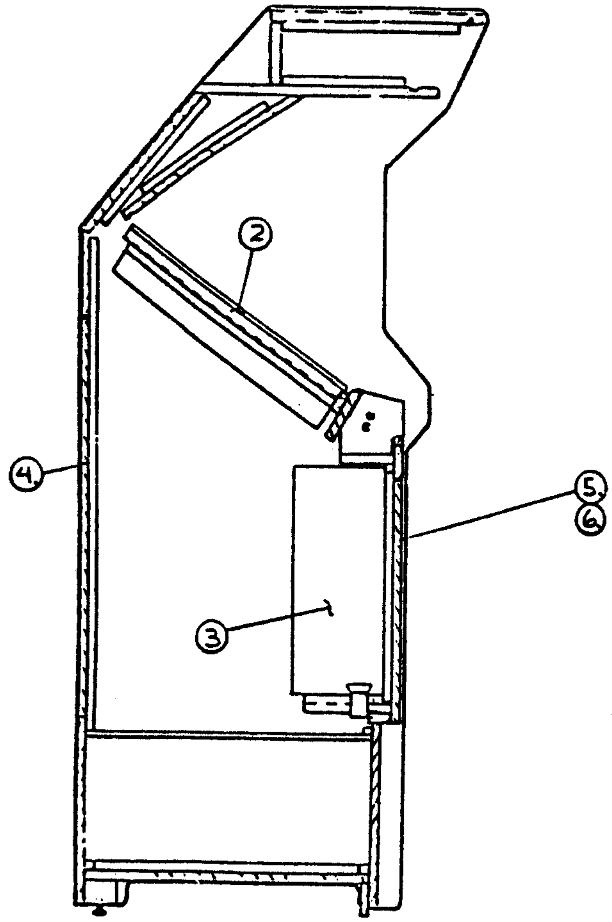
#7 CHECK THE KEY MODULE CONNECTOR

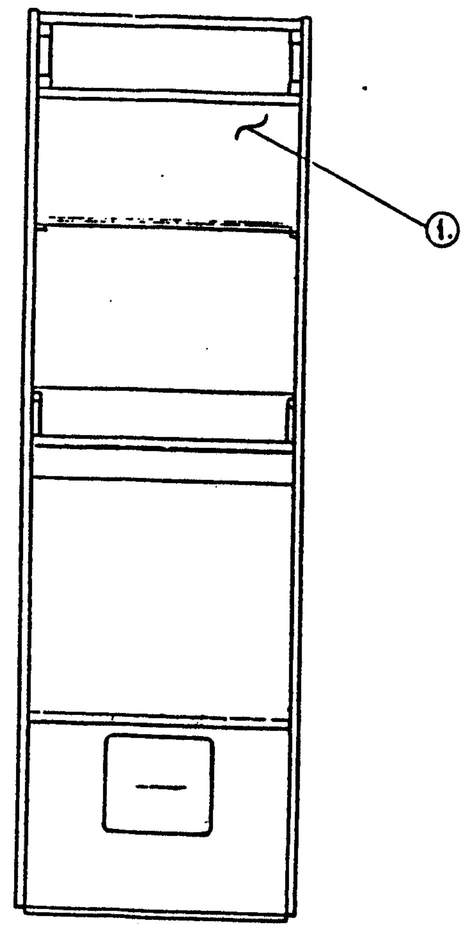
#8 CHECK THE TAPE TO INSURE SIDE "A" IS FACING UP

#9 CHECK THE TAPE TO INSURE THAT THE TAPE IS ON THE SPOOL OPPOSITE THE CAPITOL "A", IF NOT ADVANCE THE TAPE TO THE CORRECT SPOOL WITH A SCREWDRIVER

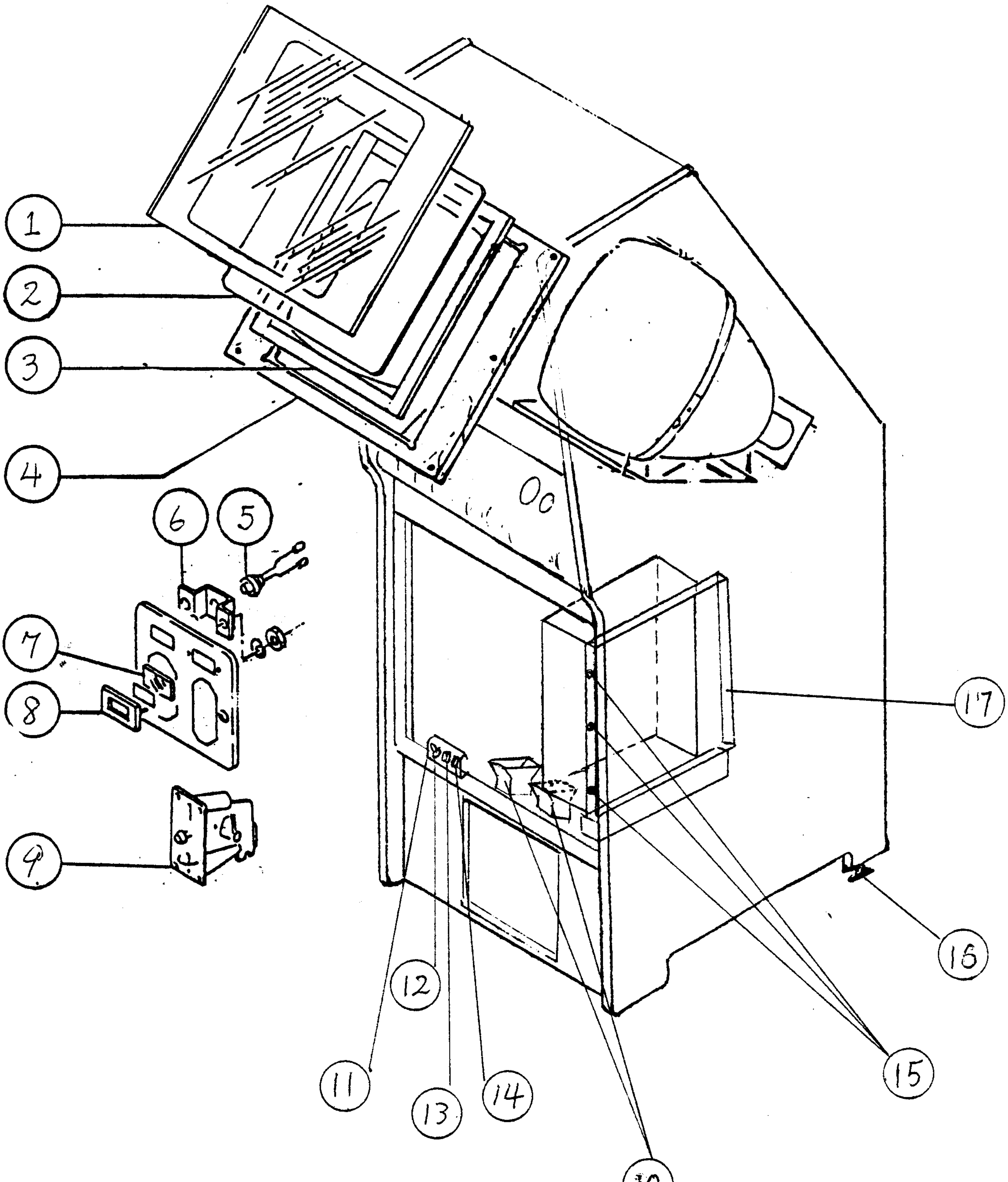



| | CABINET 1-US-5-A | Q'TY |
|---|---|---|
| 1 | PRELIM CAB ASSY | 1 |
| 2 | BEZEL HOUSING | 1 |
| 3 | CARD CAGE BOARD | 1 |
| 4 | BACK DOOR ASSY | 1 |
| 5 | FRONT PANEL DOOR ASSY | 1 |
| 6 | #8 x 5/8 PH SMS PHIL | 1 |

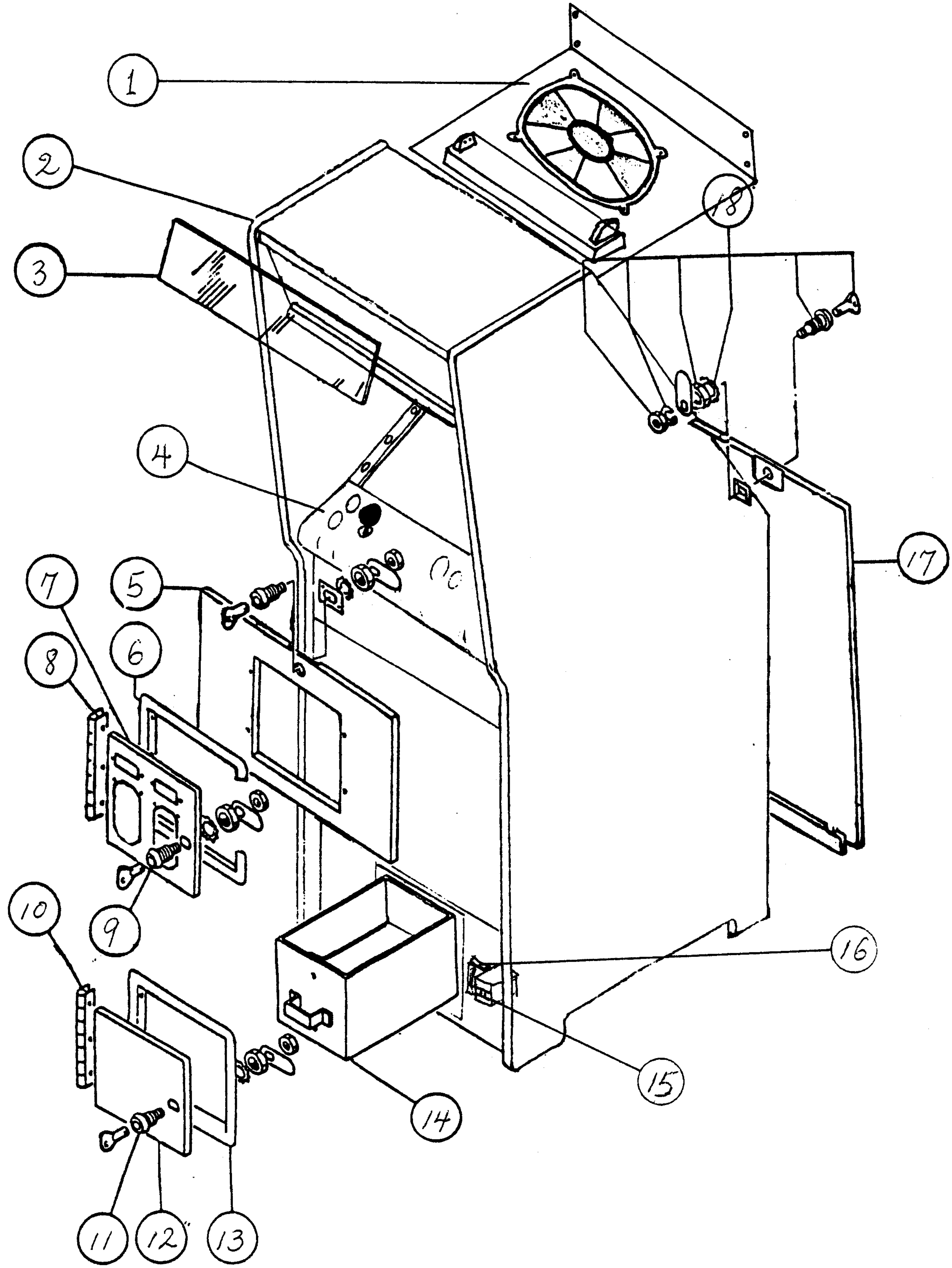



| | CABINET 1-US-5- B | Q'TY |
|---|---|---|
| 1 | PRELIM CAB ASSY | 1 |
| 2 | BEZEL HOUSING | 1 |
| 3 | CARD CAGE BOARD | 1 |
| 4 | BACK DOOR ASSY | 1 |
| 5 | FRONT PANEL DOOR ASSY | 1 |
| 6 | #8 x 5/8 PH SMS PHIL | 1 |

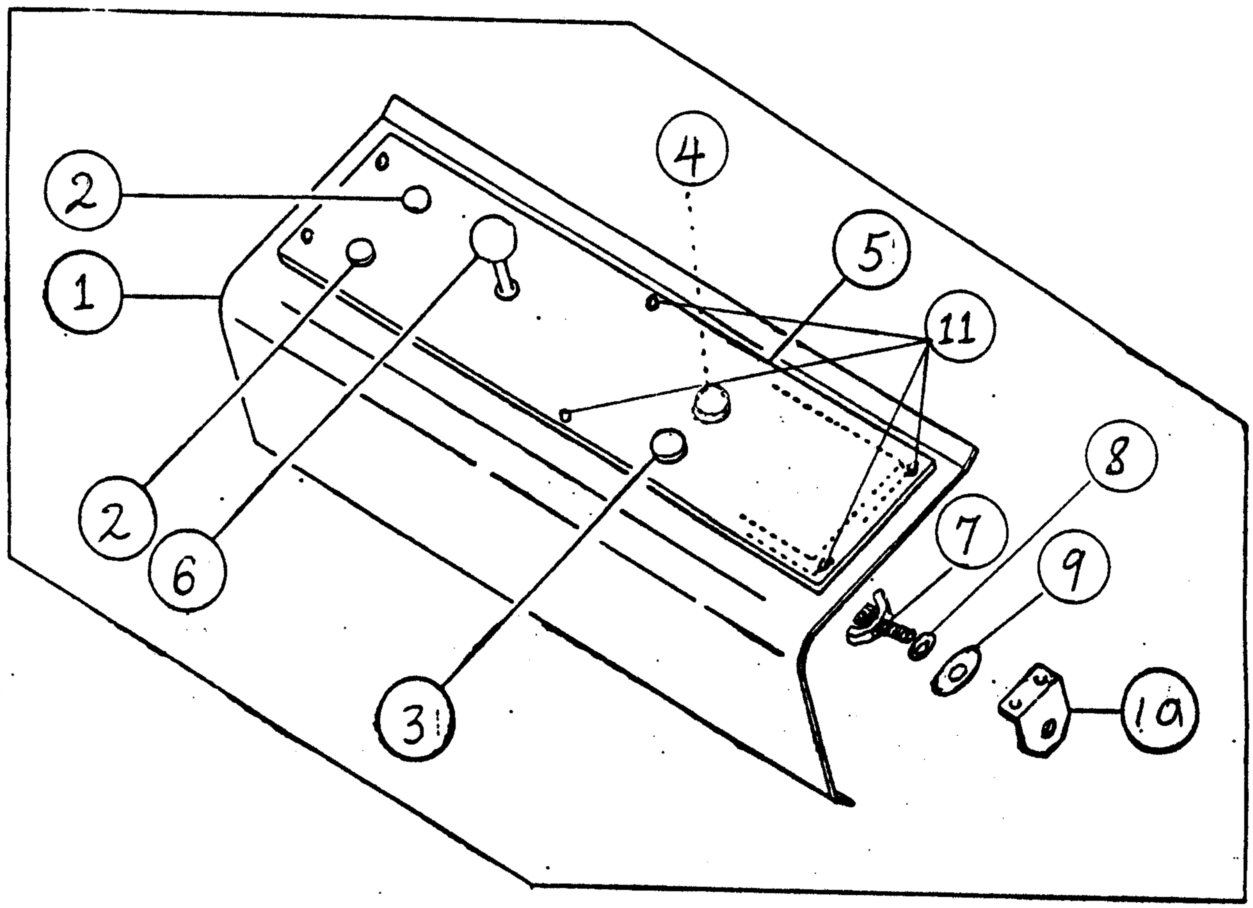

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| | | |
|---|---|---|
| 1 | FACIAL PANEL | 1 |
| 2 | FILTER | 1 |
| 3 | ESCUTCHEON | 1 |
| 4 | MASKING PANEL | 1 |
| 5 | LIGHT BULB | 2 |
| 6 | LIGHT BRACKET | 2 |
| 7 | 25¢ SEAL | 2 |
| 8 | SEAL FRAME | 2 |
| 9 | COIN SELECTOR | 2 |
| 10 | COIN FUNNEL | 2 |
| 11 | SWITCH BRACKET | 1 |
| 12 | POWER SWITCH | 1 |
| 13 | MAIN FUSE | 1 |
| 14 | DEMAGNETIZER SWITCH | 1 |
| 15 | PCB MOUNTING SCREWS | 3 |
| 16 | LEVELER | 2 |
| 17 | PCB MOUNTING BOARD | 1 |

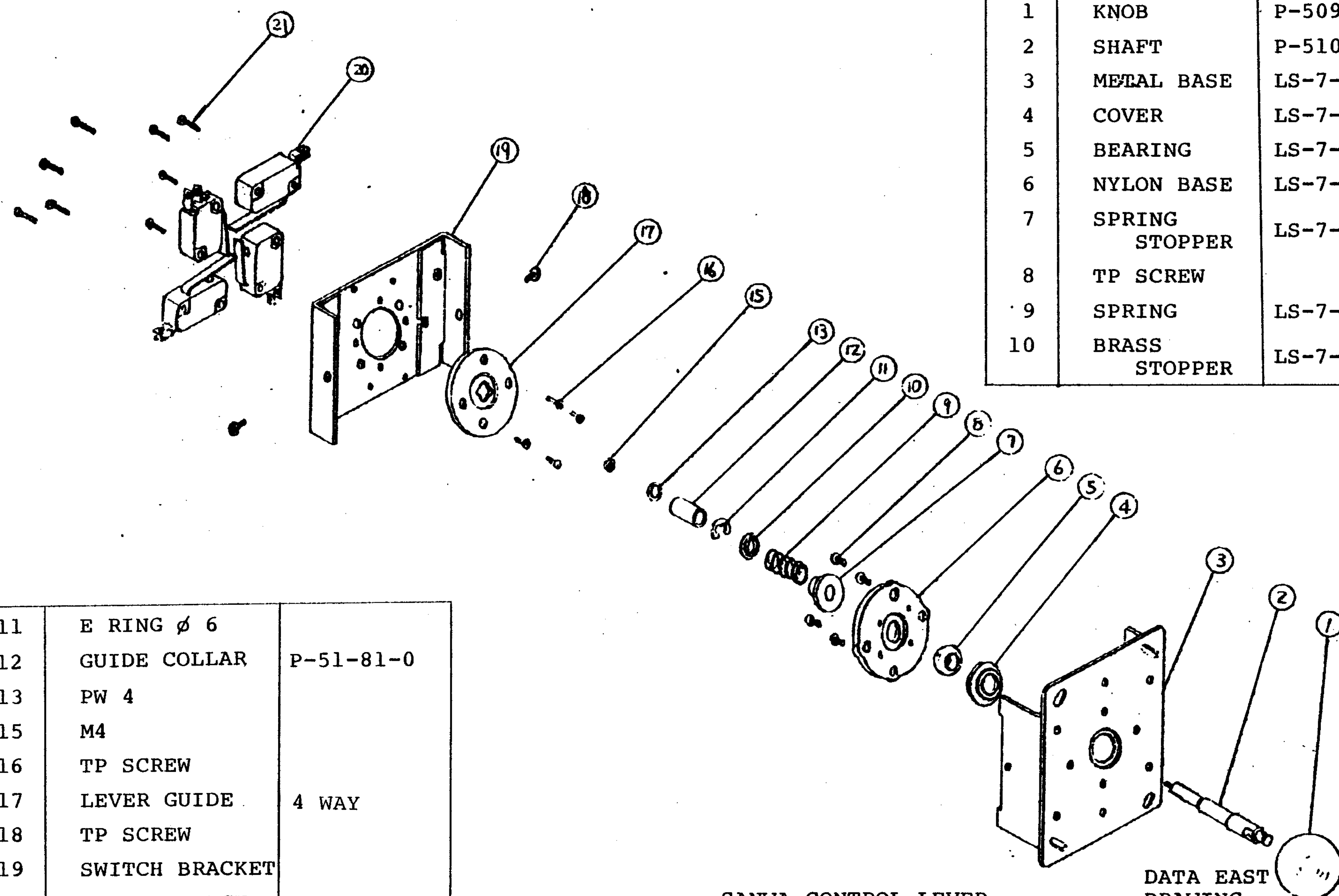

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| | | |
|---|---|---|
| 1 | SPEAKER & LIGHT HOUSING ASS'Y | 1 |
| 2 | GOLD T MOLD | 2 |
| 3 | TOP FLASH | 1 |
| 4 | CONTROL PANEL ASS'Y | 1 |
| 5 | FRONT DOOR PANEL | 1 |
| 6 | COIN SELECTOR DOOR FRAME | 1 |
| 7 | SELECTOR DOOR | 1 |
| 8 | SELECTOR DOOR HINGE | 1 |
| 9 | SELECTOR DOOR LOCK | 1 |
| 10 | CASH BOX DOOR HINGE | 1 |
| 11 | CASH BOX LOCK | 1 |
| 12 | CASH BOX DOOR | 1 |
| 13 | CASH BOX DOOR FRAME | 1 |
| 14 | CASH BOX | 1 |
| 15 | COIN COUNTER | 1 |
| 16 | COIN COUNTER CIRCUIT BOARD | 1 |
| 17 | BACK DOOR | 1 |
| 18 | BACK DOOR LOCK | 1 |

CONTROL PANEL



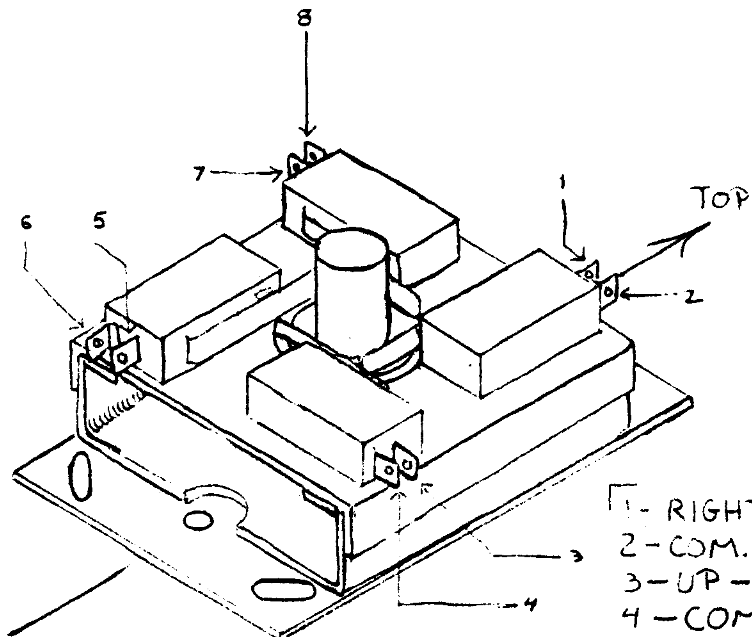

| | CONTROL PANEL ASSEMBLY FOR US-5 | Q'TY |
|---|---|---|
| 1 | CONTROL PANEL CHASSIS | 1 |
| 2 | PLAYER I & II BUTTONS (YELLOW) | 2 |
| 3 | SHOOT BUTTON-I (RED) | 1 |
| 4 | SHOOT BUTTON-II (BLUE) | 1 |
| 5 | CONTROL PANEL OVERLAY<br>-A WITH 2 SHOOT BUTTON HOLE<br>-B WITH 1 SHOOT BUTTON HOLE | 1 |
| 6 | CONTROL LEVER ASS'Y | 1 |
| 7 | WING NUT | 2 |
| 8 | SPRING WASHER | 2 |
| 9 | LARGE WASHER | 2 |
| 10 | CONTROL PANEL INSTALLATION BRACKET | 2 |
| 11 | OVERLAY PLASTIC FASTNER | 6 |



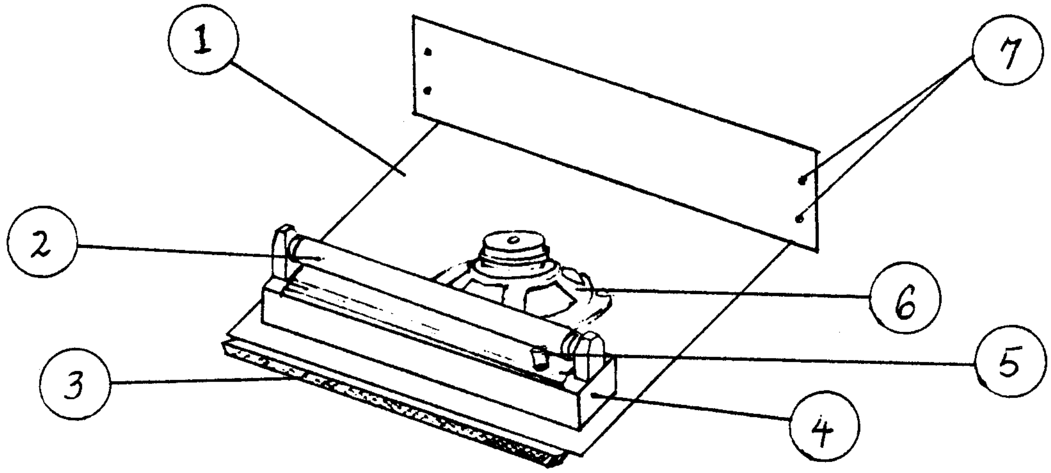
| NO | DESCRIPTION | REF. |
|---|---|---|
| 1 | KNOB | P-50913-0 |
| 2 | SHAFT | P-51080-0 |
| 3 | METAL BASE | LS-7-1 |
| 4 | COVER | LS-7-4 |
| 5 | BEARING | LS-7-5 |
| 6 | NYLON BASE | LS-7-3 |
| 7 | SPRING STOPPER | LS-7-6 |
| 8 | TP SCREW | |
| 9 | SPRING | LS-7-15 |
| 10 | BRASS STOPPER | LS-7-16 |
| 11 | E RING ø 6 | |
| 12 | GUIDE COLLAR | P-51-81-0 |
| 13 | PW 4 | |
| 15 | M4 | |
| 16 | TP SCREW | |
| 17 | LEVER GUIDE | 4 WAY |
| 18 | TP SCREW | |
| 19 | SWITCH BRACKET | |
| 20 | MICRO SWITCH | |
| 21 | TP SCREW | |

SANWA CONTROL LEVER
(DLS-5)

DATA EAST
DRAWING
NO. K-50774-0

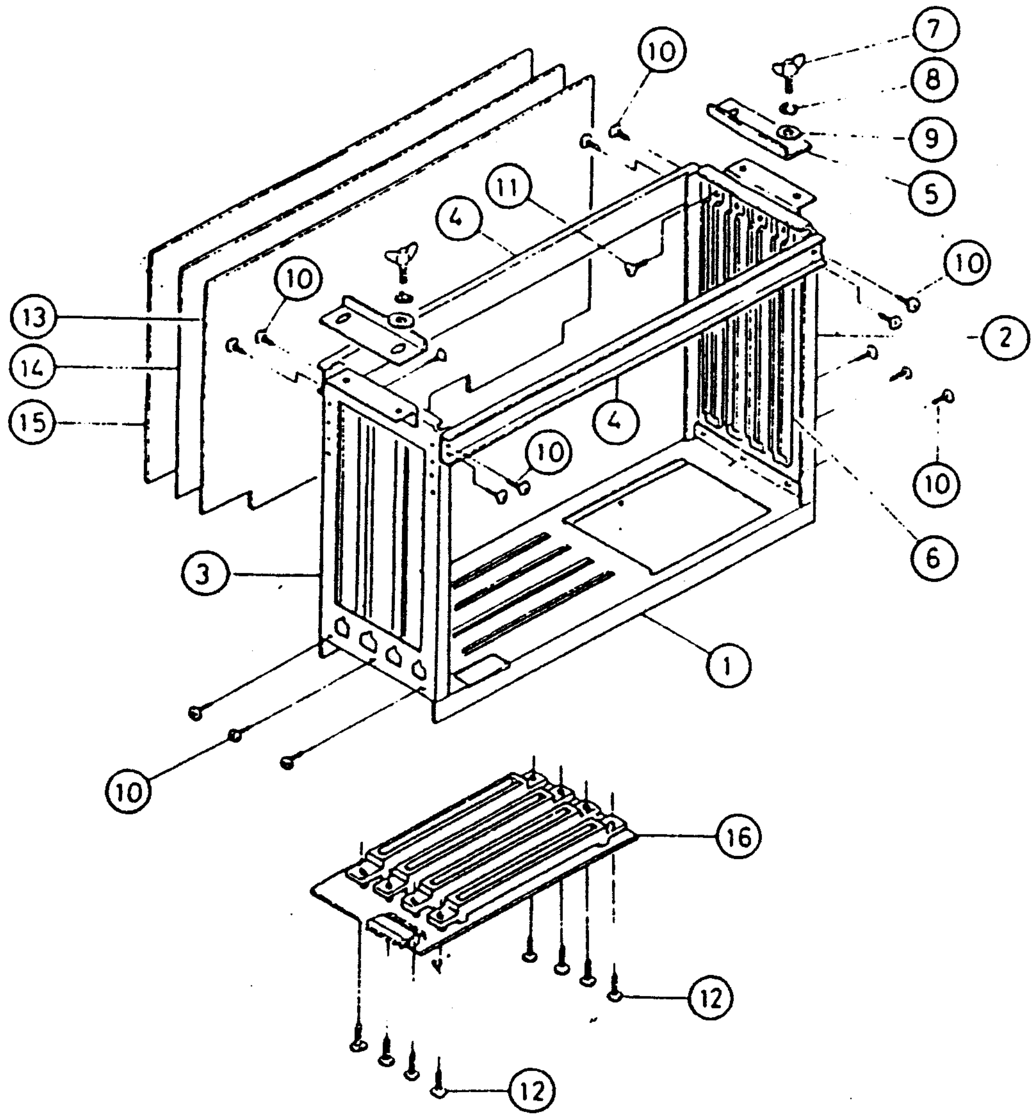



1 - RIGHT - RED
2 - COM. - BLACK
3 - UP - YELLOW
4 - COM. - BLACK
5 - LEFT - ORANGE
6 - COM. - BLACK
7 - DOWN - GREEN
8 - COM. - BLACK




| | SPEAKER & LIGHT HOUSING ASSEMBLY | UK-01111 |
|---|---|---|
| 1 | SPEAKER & LIGHT HOUSING CHASSIS | 1 |
| 2 | FL BULB | 1 |
| 3 | FOAM CUSHION | 1 |
| 4 | LIGHT FIXTURE | 1 |
| 5 | FL STARTER | 1 |
| 6 | SPEAKER | 1 |
| 7 | SCREWS | 4 |

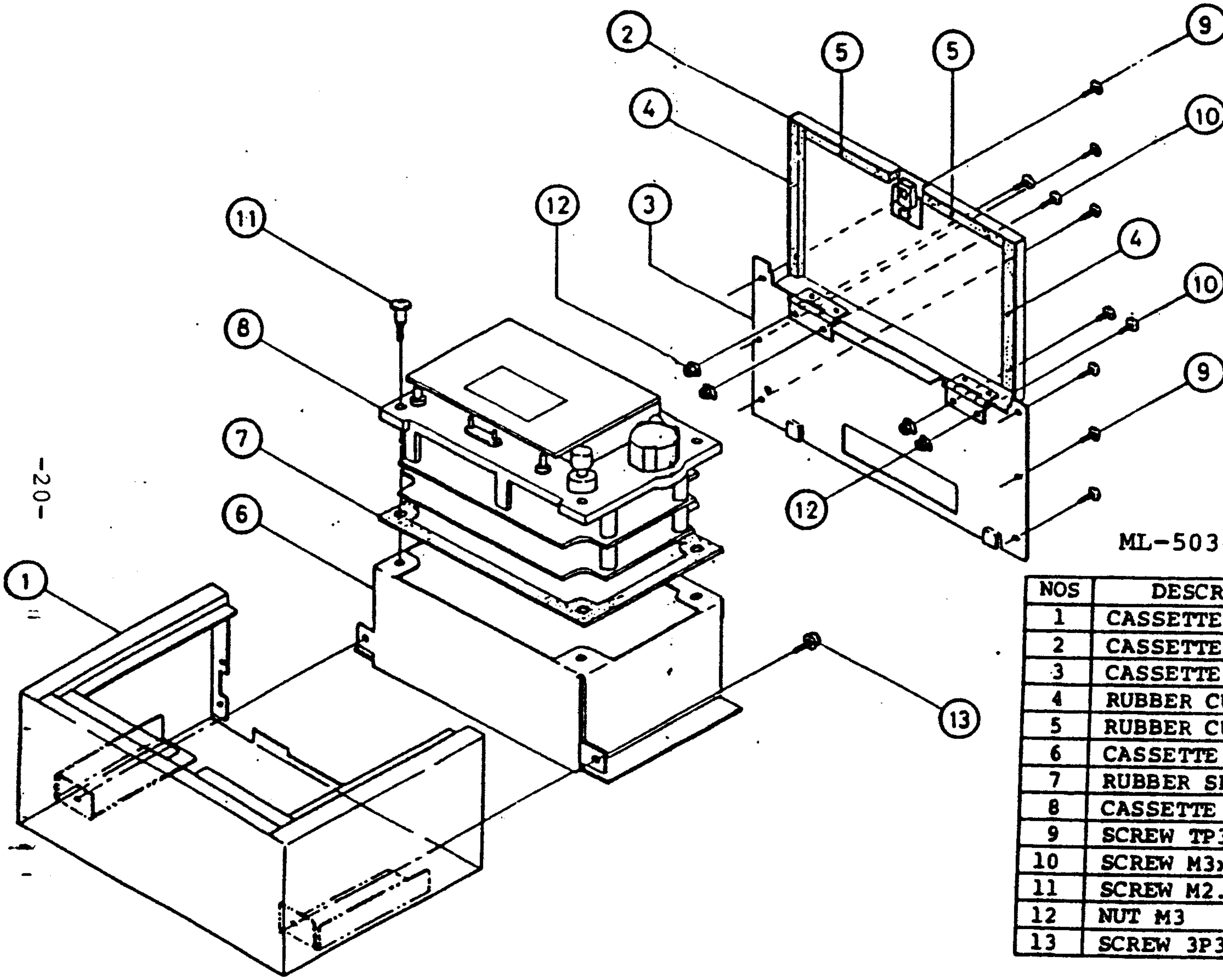
P.C.B. ASSEMBLY




K-50598-0

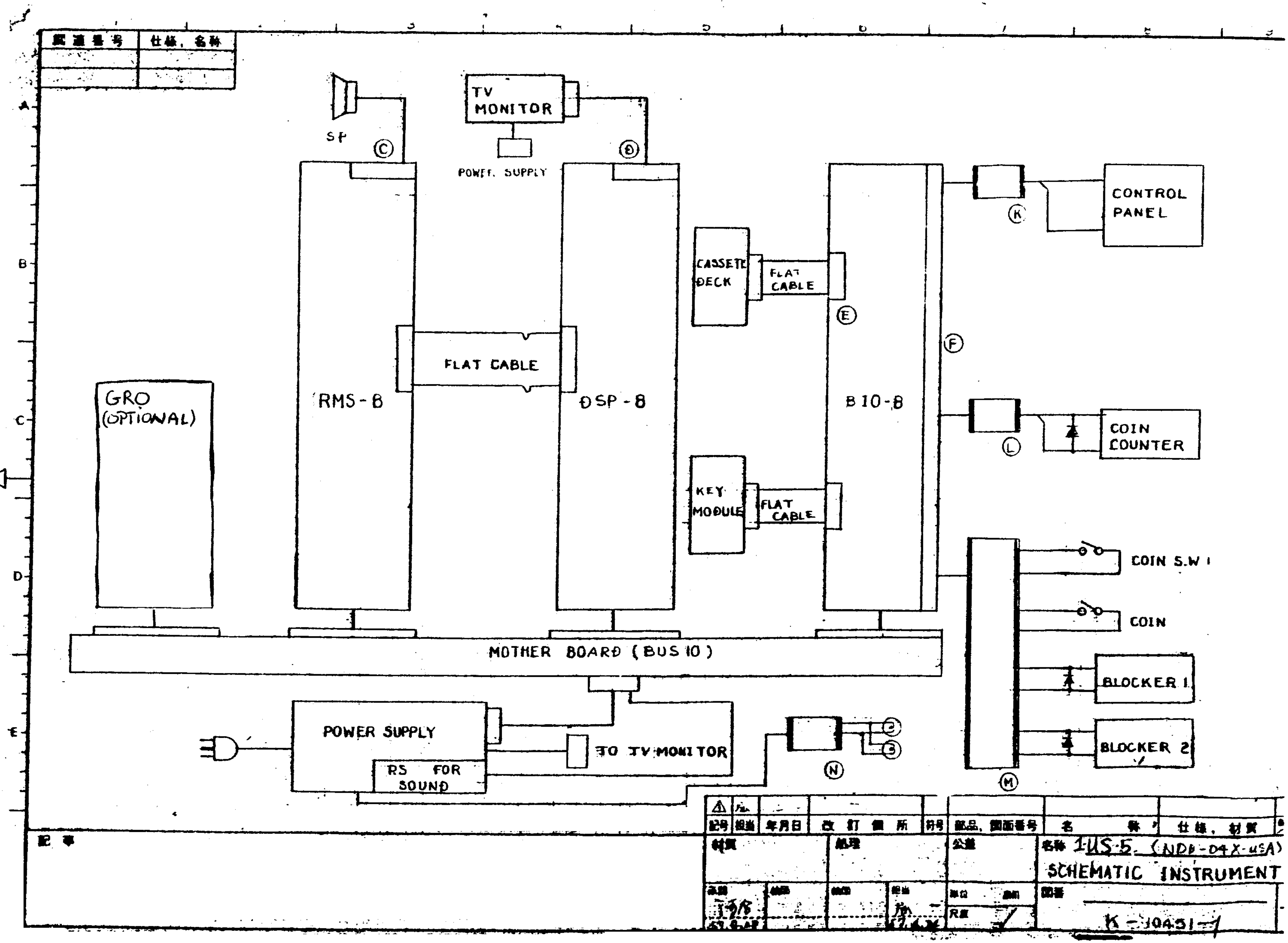
| NOS | DESCRIPTION | PARTS NOS. | Q'TY/SET |
|---|---|---|---|
| 1 | CN SUPPORT | k-50216-3 | 1 |
| 2 | SIDE PLATE(R) | k-50603-0 | 1 |
| 3 | SIDE PLATE(L) | k-50604-0 | 1 |
| 4 | SIDE PLATE SUPPORT | P-50935-1 | 2 |
| 5 | PCB STOPPER | P-59514-0 | 2 |
| 6 | GUIDE RAIL | 50-1030 | 8 |
| 7 | WING BOLT | | 4 |
| 8 | SW4 | | 4 |
| 9 | PW4 | | 4 |
| 10 | TP3x8 | | 14 |
| 11 | TP3x8 | | 8 |
| 12 | TP3x12 | | 8 |
| 13 | BI08 | DE-0098 | 1 |
| 14 | DSP8 | DE-0096 | 1 |
| 15 | RMS8 | DE-0097 | 1 |
| 16 | BUS10 | DE-0109 | 1 |

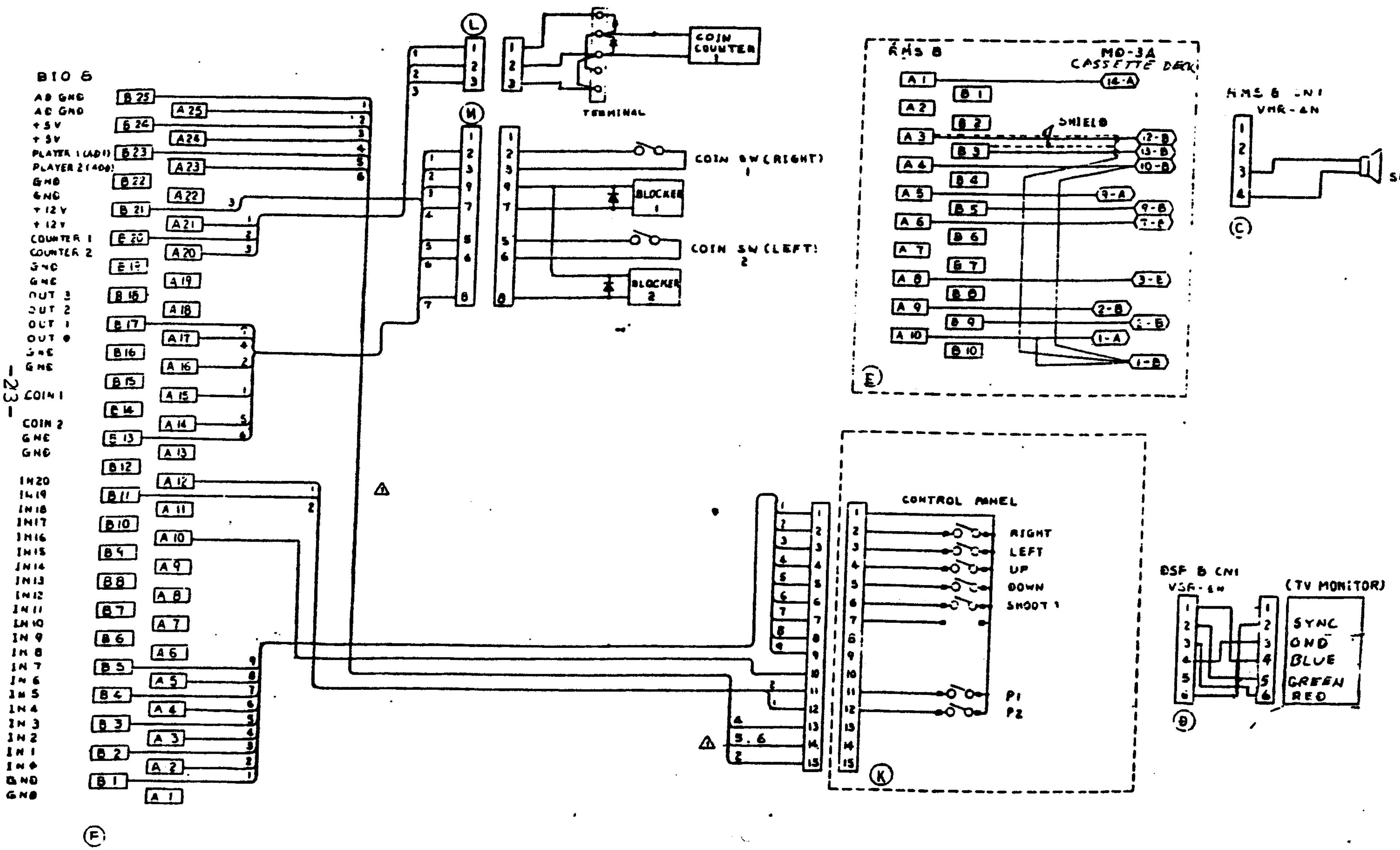
# CASSETTE DECK ASSEMBLY



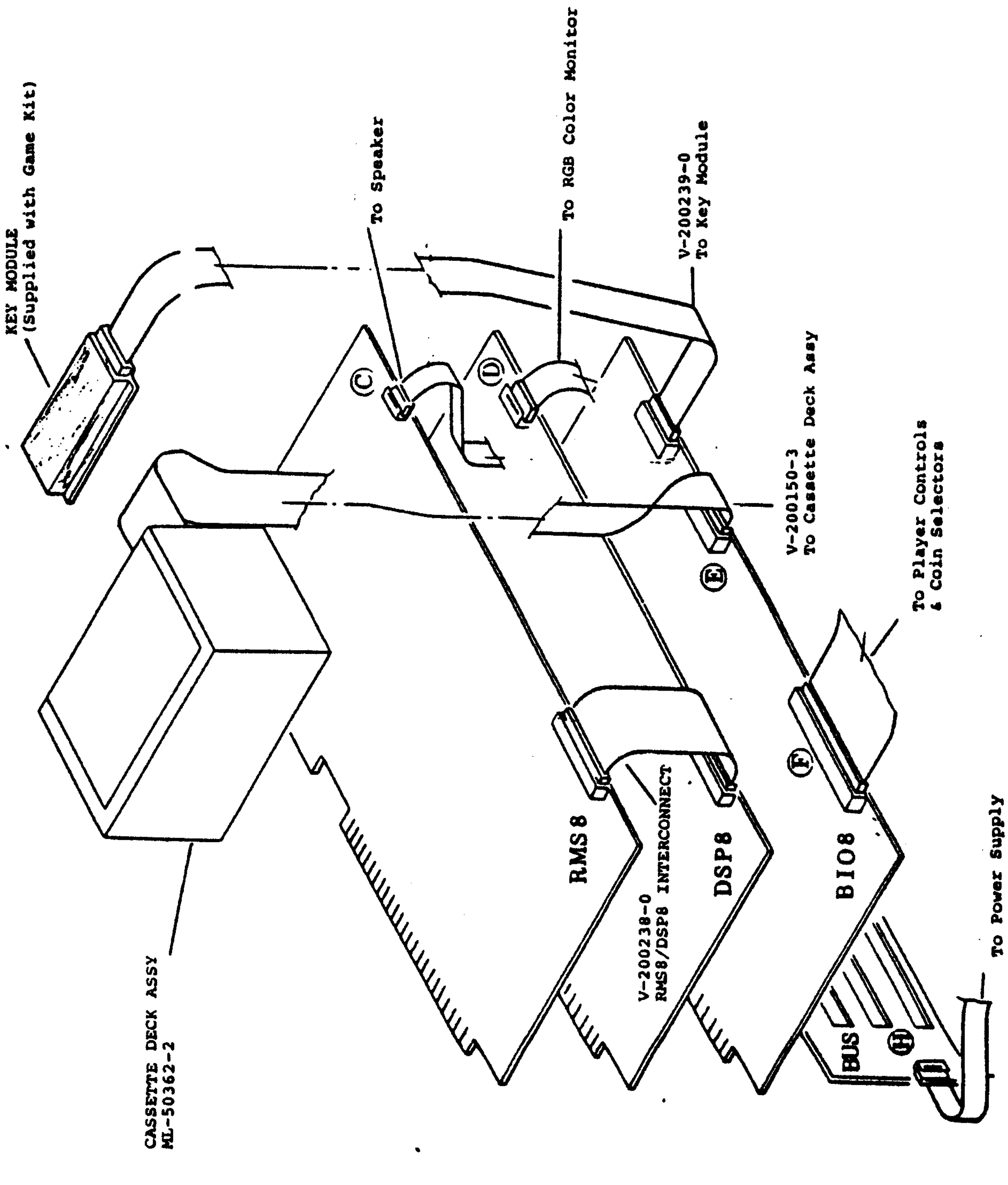

ML-50362-2

| NOS | DESCRIPTION | PARTS NOS | Q'ty/SET |
|---|---|---|---|
| 1 | CASSETTE BRACKET(A) | G-50177-1 | 1 |
| 2 | CASSETTE DOOR | K-50575-1 | 1 |
| 3 | CASSETTE BRACKET(B) | P-50947-0 | 1 |
| 4 | RUBBER CUSHION(A) | P-50949-0 | 2 |
| 5 | RUBBER CUSHION(B) | P-50950-0 | 2 |
| 6 | CASSETTE BRACKET | K-50141-2 | 1 |
| 7 | RUBBER SHEET | P-50769-0 | 1 |
| 8 | CASSETTE DECK | MD-3A | 1 |
| 9 | SCREW TP3x8 | | 6 |
| 10 | SCREW M3x6 | | 4 |
| 11 | SCREW M2.6x12 | | 4 |
| 12 | NUT M3 | | 4 |
| 13 | SCREW 3P3x8 | | 2 |

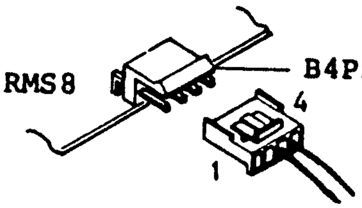

SP
TV MONITOR
POWER SUPPLY
CONTROL PANEL
CASSETE DECK
FLAT CABLE
FLAT CABLE
GRO (OPTIONAL)
RMS-B
DSP-B
B10-B
COIN COUNTER
KEY MODULE
FLAT CABLE
COIN S.W 1
COIN
MOTHER BOARD (BUS 10)
BLOCKER 1
POWER SUPPLY
TO TV MONITOR
RS FOR SOUND
BLOCKER 2
名称 1US-5 (NDB-04X-USA)
SCHEMATIC INSTRUMENT
K-10451-1



BIO 6
AB GND
AC GND
+5V
+5V
PLAYER 1 (AD1)
PLAYER 2 (AD0)
GND
GND
+12V
+12V
COUNTER 1
COUNTER 2
OUT 3
OUT 2
OUT 1
OUT 0
COIN 1
COIN 2
GND
IN20
IN19
IN18
IN17
IN16
IN15
IN14
IN13
IN12
IN11
IN10
IN 9
IN 8
IN 7
IN 6
IN 5
IN 4
IN 3
IN 2
IN 1
IN 0
GND
TERMINAL
COIN COUNTER 1
COIN SW (RIGHT) 1
COIN SW (LEFT) 2
BLOCKER 1
BLOCKER 2
RMS B
MD-3A CASSETTE DECK
SHIELD
RMS B CN1
VHR-4N
SP
CONTROL PANEL
RIGHT
LEFT
UP
DOWN
SHOOT 1
P1
P2
DSF B CN1
VSR-6N
(TV MONITOR)
SYNC
GND
BLUE
GREEN
RED


KEY MODULE
(Supplied with Game Kit)
To Speaker
To RGB Color Monitor
V-200239-0
To Key Module
V-200150-3
To Cassette Deck Assy
To Player Controls
& Coin Selectors
To Power Supply
CASSETTE DECK ASSY
ML-50362-2
V-200238-0
RMS8/DSP8 INTERCONNECT
RMS8
DSP8
BIO8
BUS
C
D
E
F
H

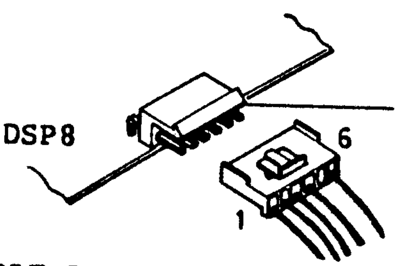
PC1 RMS8 CN1




CABLE C V-200236-1 To Speaker

| | | |
|---|---|---|
| | | |
| 1 | | |
| 2 | | |
| 3 | SPEAKER- (GND) | BLACK |
| 4 | SPEAKER+ | WHITE |

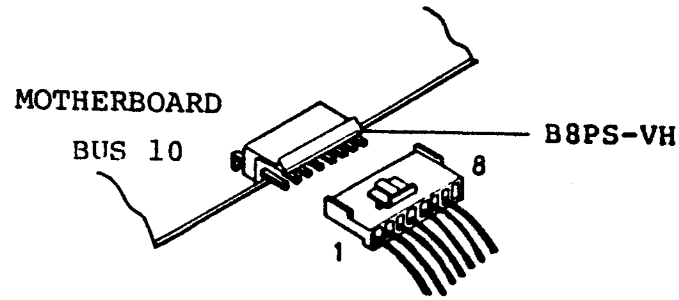
2. PC2 DSP8 CN1




CABLE D V-200235-1 To RGB Monitor

| | | |
|---|---|---|
| | | |
| 1 | TV.B | BLUE |
| 2 | TV.G | GREEN |
| 3 | TV.R | RED |
| 4 | TV.GND | BLACK |
| 5 | | |
| 6 | SYNC | WHITE |

BUS 10 CN2



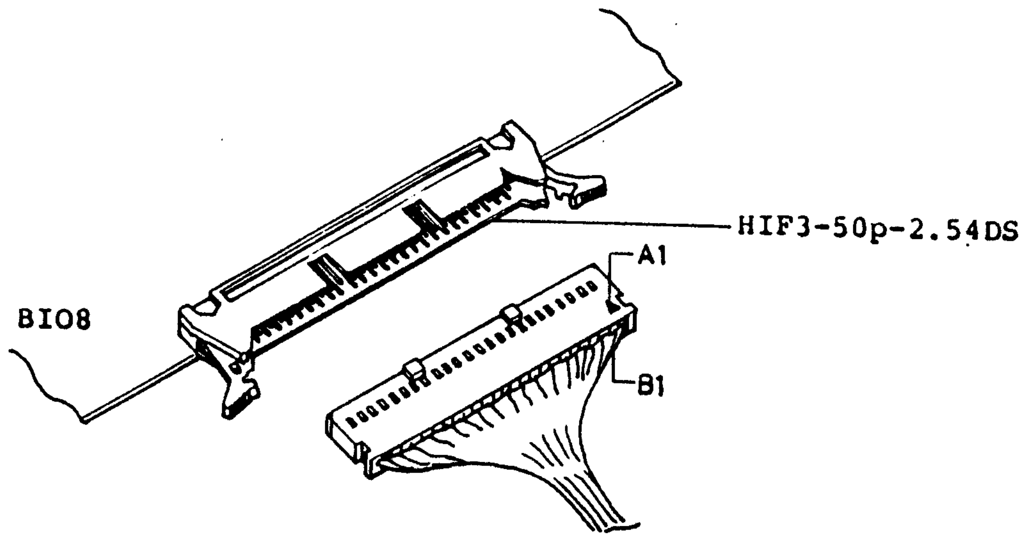

CABLE H V-200240-1 To Power Supply

| | | |
|---|---|---|
| 1 | +12V | ORANGE |
| * 2 | +5V | RED |
| 3 | +13V | PINK |
| ' 4 | GND | BLACK |
| ' 5 | GND | BLACK |
| 6 | -5V | BLUE |
| * 7 | +5V | RED |
| 8 | | |

*2 & 7 connected internally on BUS 10

'4 & 5 connected internally on BUS 10

PC3 BIO8 CN3

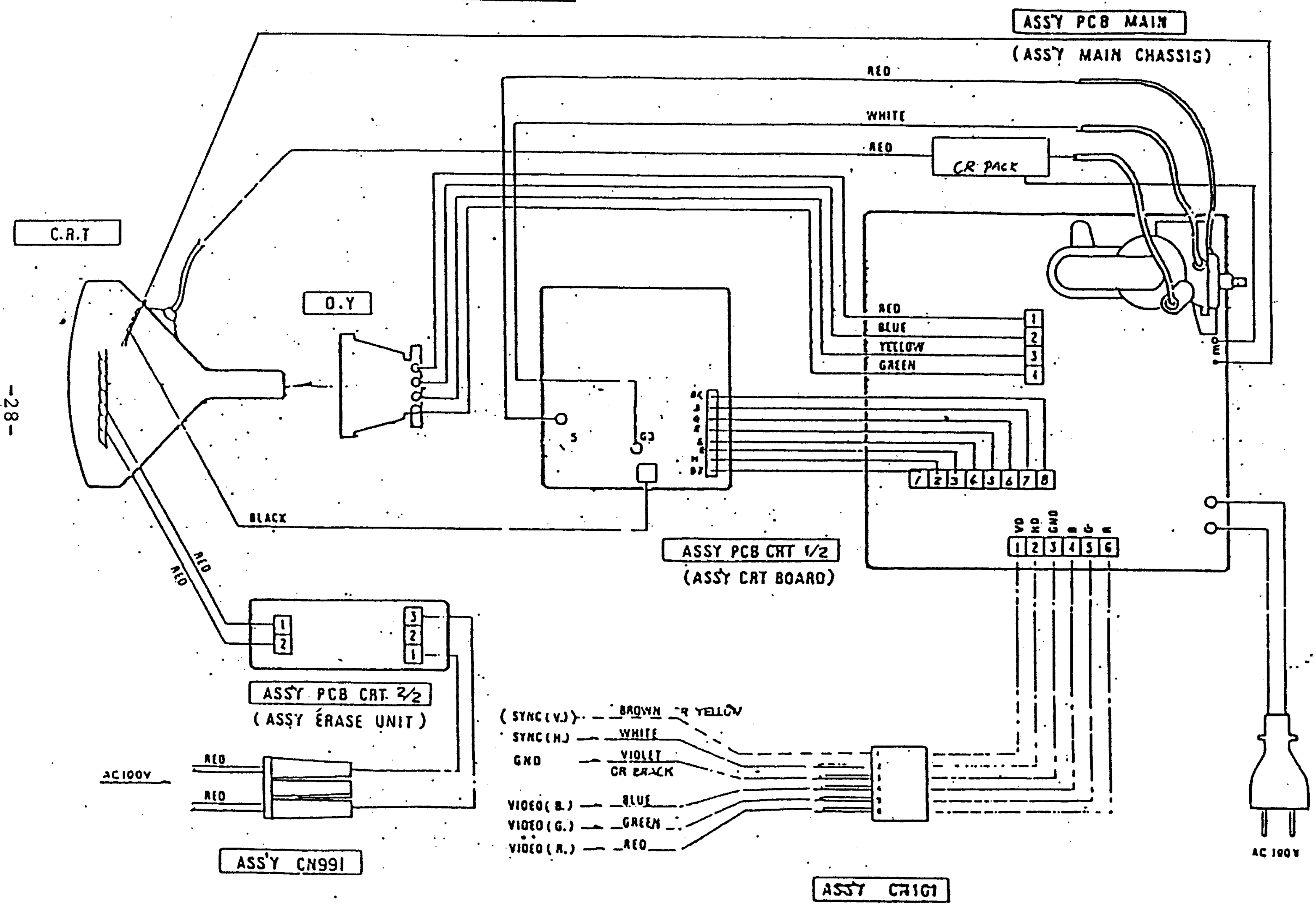


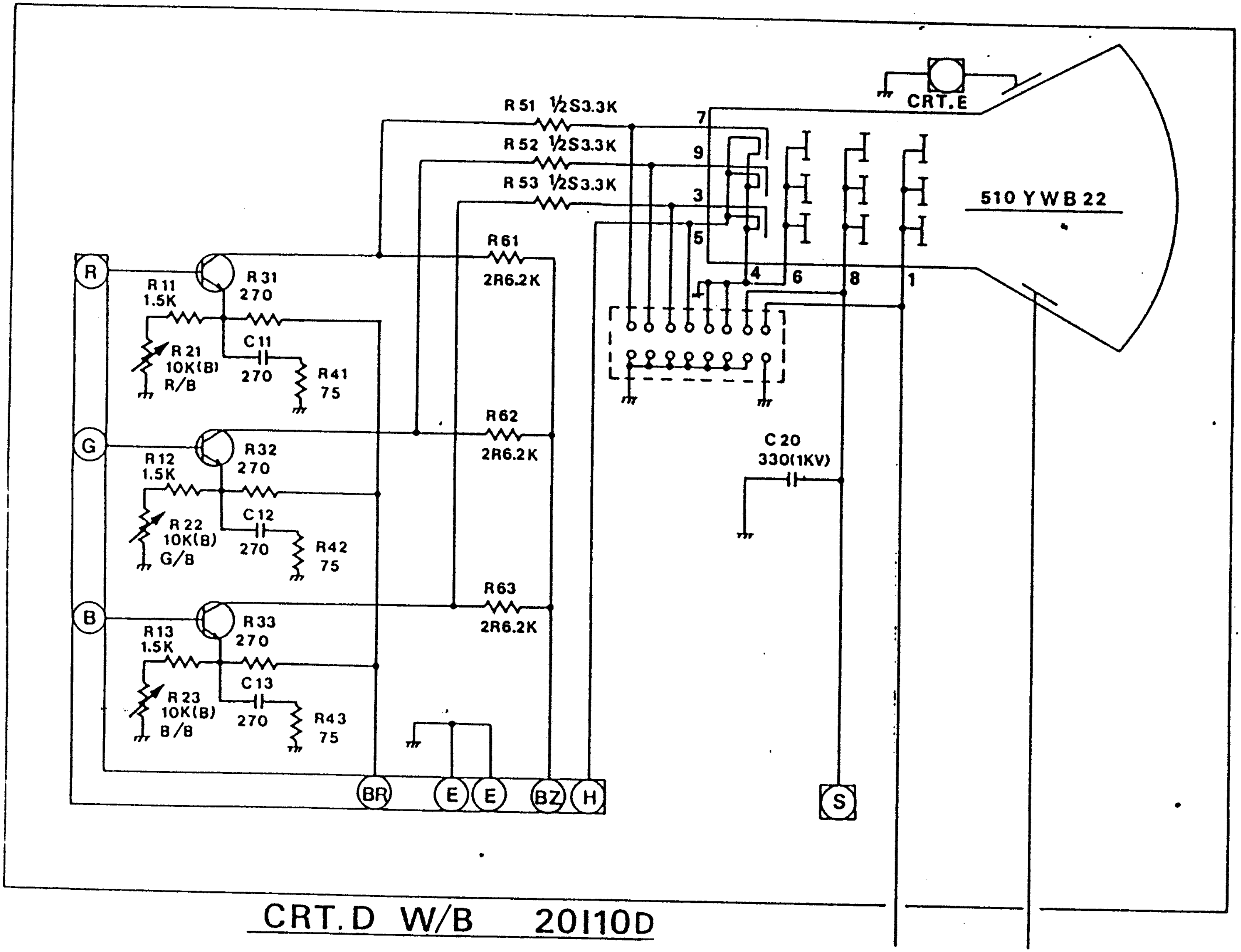

CABLE F V-200242-1 to Player Controls & Coin Selectors

| | | | | | |
|---|---|---|---|---|---|
| BLACK & WHITE | A1 | GND | B1 | GND | BLACK & WHITE |
| RED | A2 | 1p(R) | B2 | 1p(L) | ORANGE |
| RED | A3 | 1p(U) | B3 | 1p(D) | ORANGE |
| YELLOW | A4 | 1p SHOOT 1 | B4 | 1p SHOOT 2 | BLUE |
| | A5 | | B5 | | |
| RED | A6 | 2p(R) | B6 | 2p(L) | ORANGE |
| YELLOW | A7 | 2p(U) | B7 | 2p(D) | GREEN |
| VIOLET | A8 | 2p SHOOT 1 | B8 | 2p SHOOT 2 | BLUE |
| | A9 | | B9 | | |
| | A10 | | B10 | | |
| | A11 | | B11 | 1p | BROWN |
| BLUE & WHITE | A12 | 2p | B12 | | |
| | A13 | | B13 | | |
| WHITE | A14 | COIN SW 2 | B14 | | |
| GREEN | A15 | COIN SW 1 | B15 | | |
| BLACK & WHITE | A16 | GND | B16 | | |
| BROWN | A17 | BLOCKER 1 | B17 | BLOCKER 2 | RED |
| | A18 | | B18 | | |
| | A19 | | B19 | | |
| WHITE | A20 | COUNTER 2 | B20 | COUNTER 1 | VIOLET |
| | A21 | | B21 | | |
| | A22 | | B22 | | |
| | A23 | | B23 | | |
| | A24 | | B24 | | |
| | A25 | | B25 | | |

SANWA MONITOR

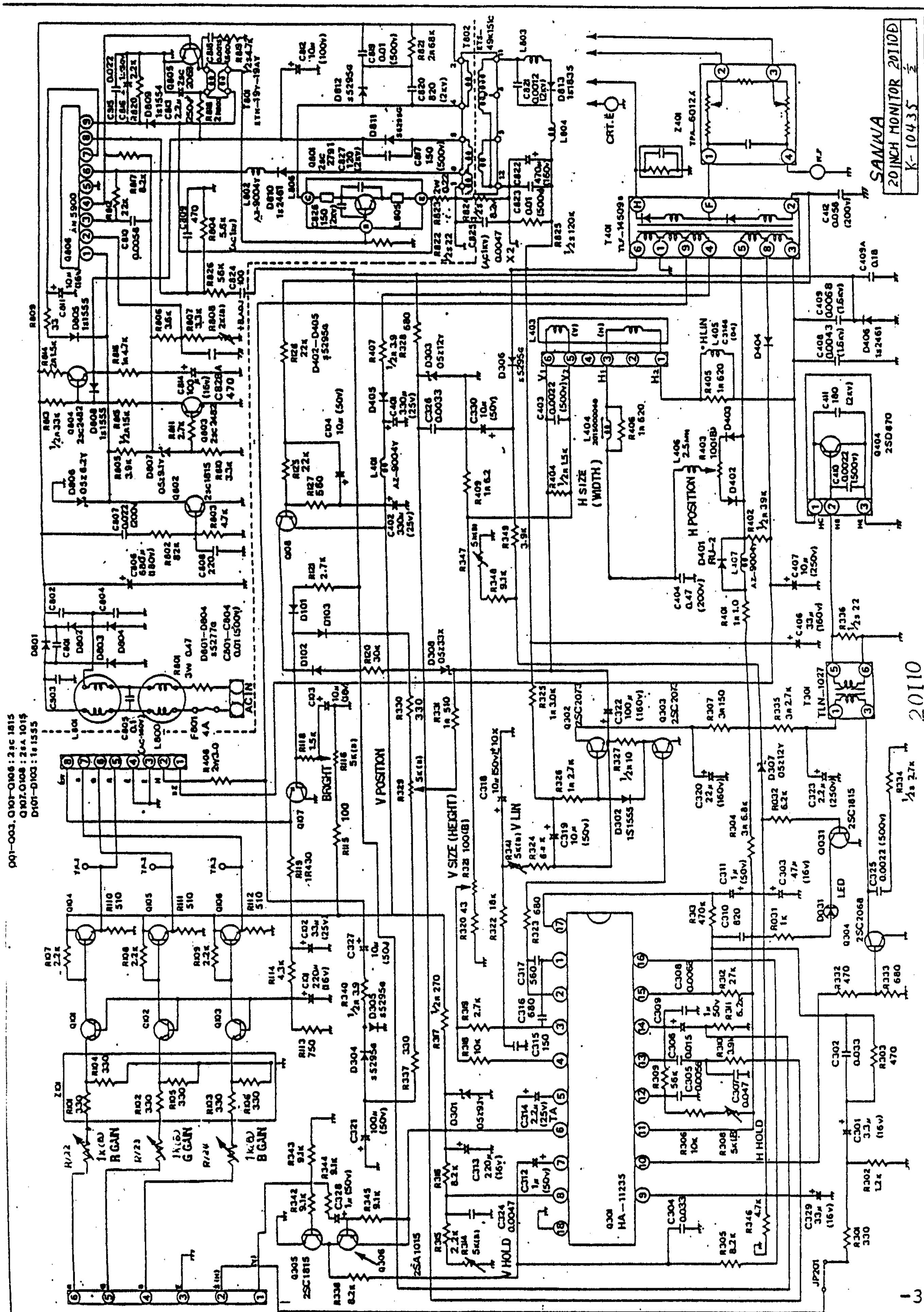
BLOCK DIAGRAM 20110D

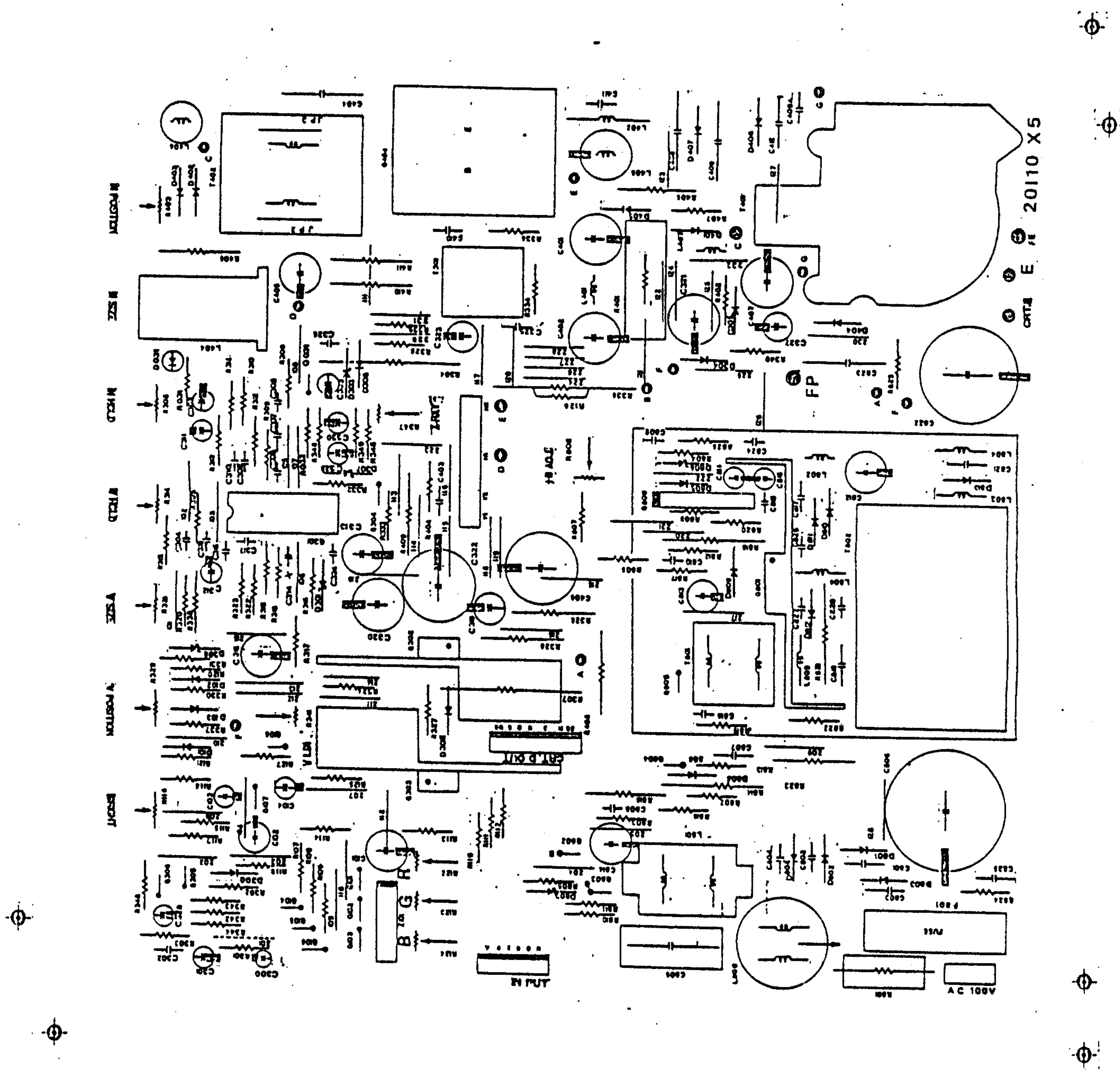


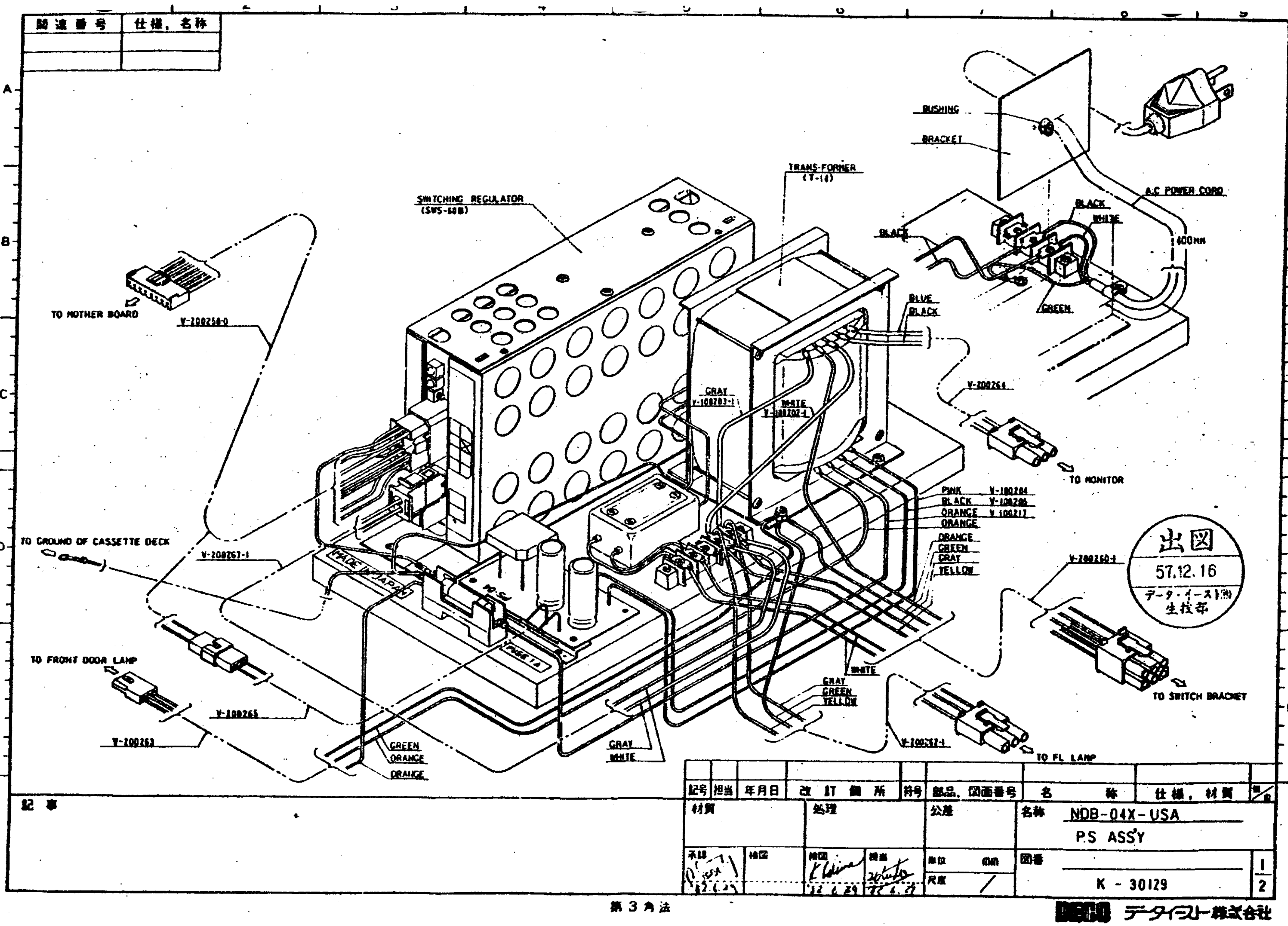



CRT.D W/B 20I10D

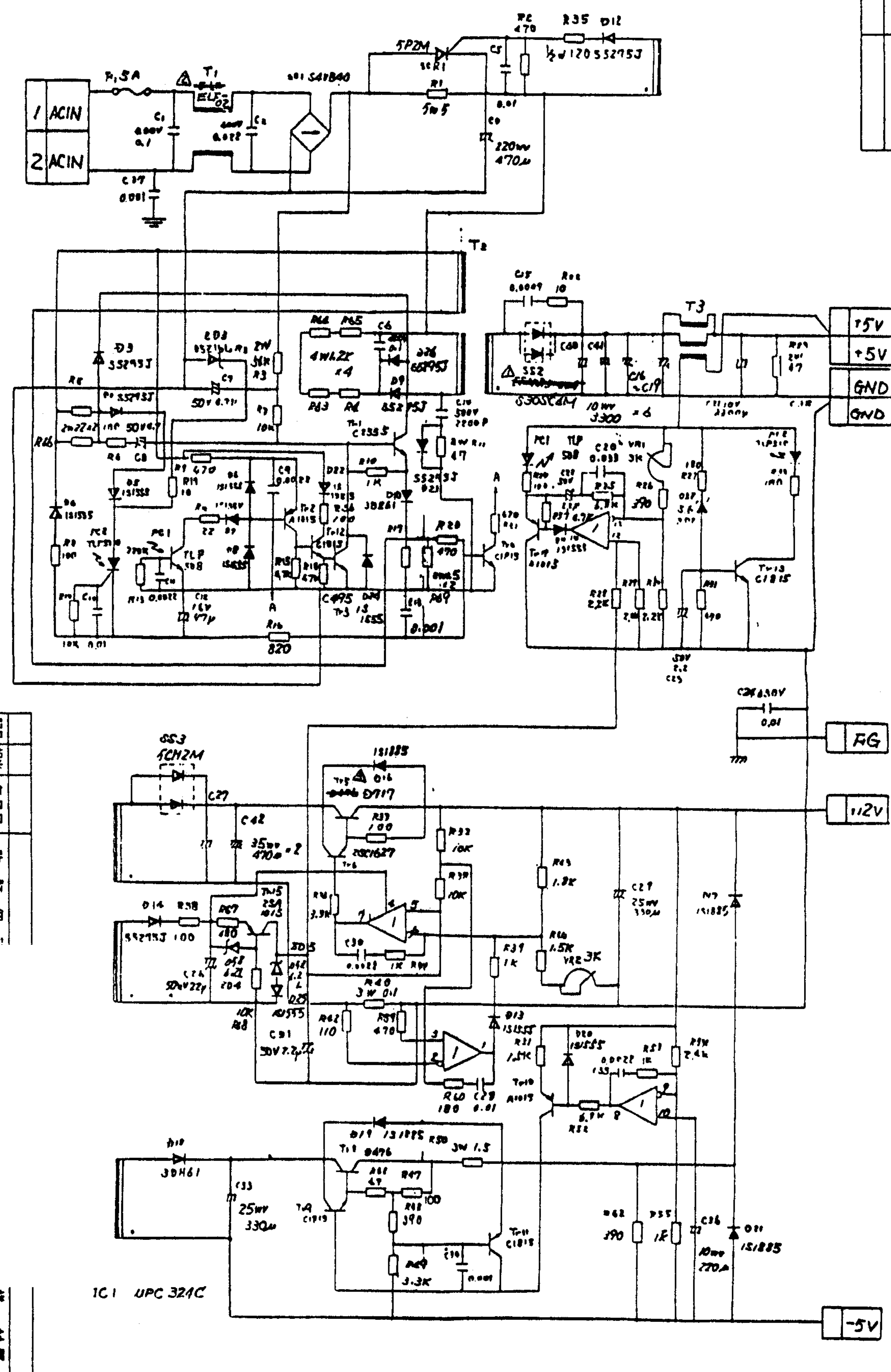
20INCH MONITOR 20I10D
K-10435 2/2


SANWA
20 INCH MONITOR 20110D
K-10435
20110


20110 X5
IN PUT
AC 100V
FP



関連番号
仕様, 名称
SWITCHING REGULATOR
(SWS-60B)
TRANS-FORMER
(T-14)
BUSHING
BRACKET
A.C POWER CORD
BLACK
WHITE
BLACK
400MM
GREEN
BLUE
BLACK
V-200264
TO MONITOR
GRAY
V-100203-1
WHITE
V-100202-1
PINK
BLACK
ORANGE
ORANGE
V-100204
V-100206
V 100217
ORANGE
GREEN
GRAY
YELLOW
V-200260-1
TO SWITCH BRACKET
WHITE
GRAY
GREEN
YELLOW
V-200262-1
TO FL LAMP
GRAY
WHITE
GREEN
ORANGE
ORANGE
TO MOTHER BOARD
V-200258-0
TO GROUND OF CASSETTE DECK
V-200267-1
TO FRONT DOOR LAMP
V-200265
V-200263
MADE IN JAPAN
出図
57.12.16
データ・イースト㈱
生技部
記事
記号
担当
年月日
改訂個所
符号
部品, 図面番号
名称
仕様, 材質
材質
処理
公差
名称 NDB-04X-USA
P.S ASS'Y
承認
検図
製図
担当
単位 mm
尺度 /
図番
K - 30129
1/2
第3角法
DECO データイースト株式会社

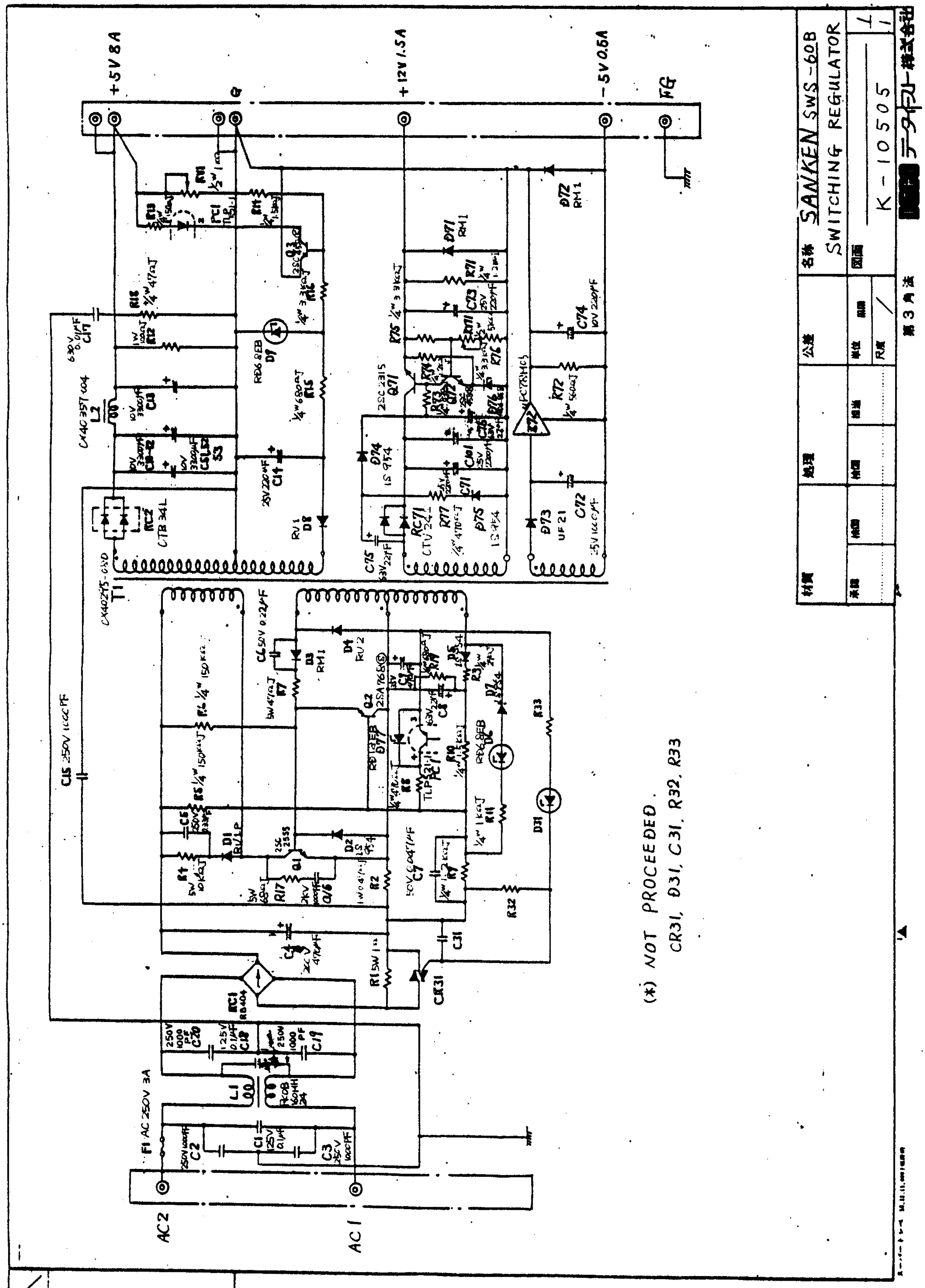



名称 ELCO SWS-50
SWITCHING REGULATOR

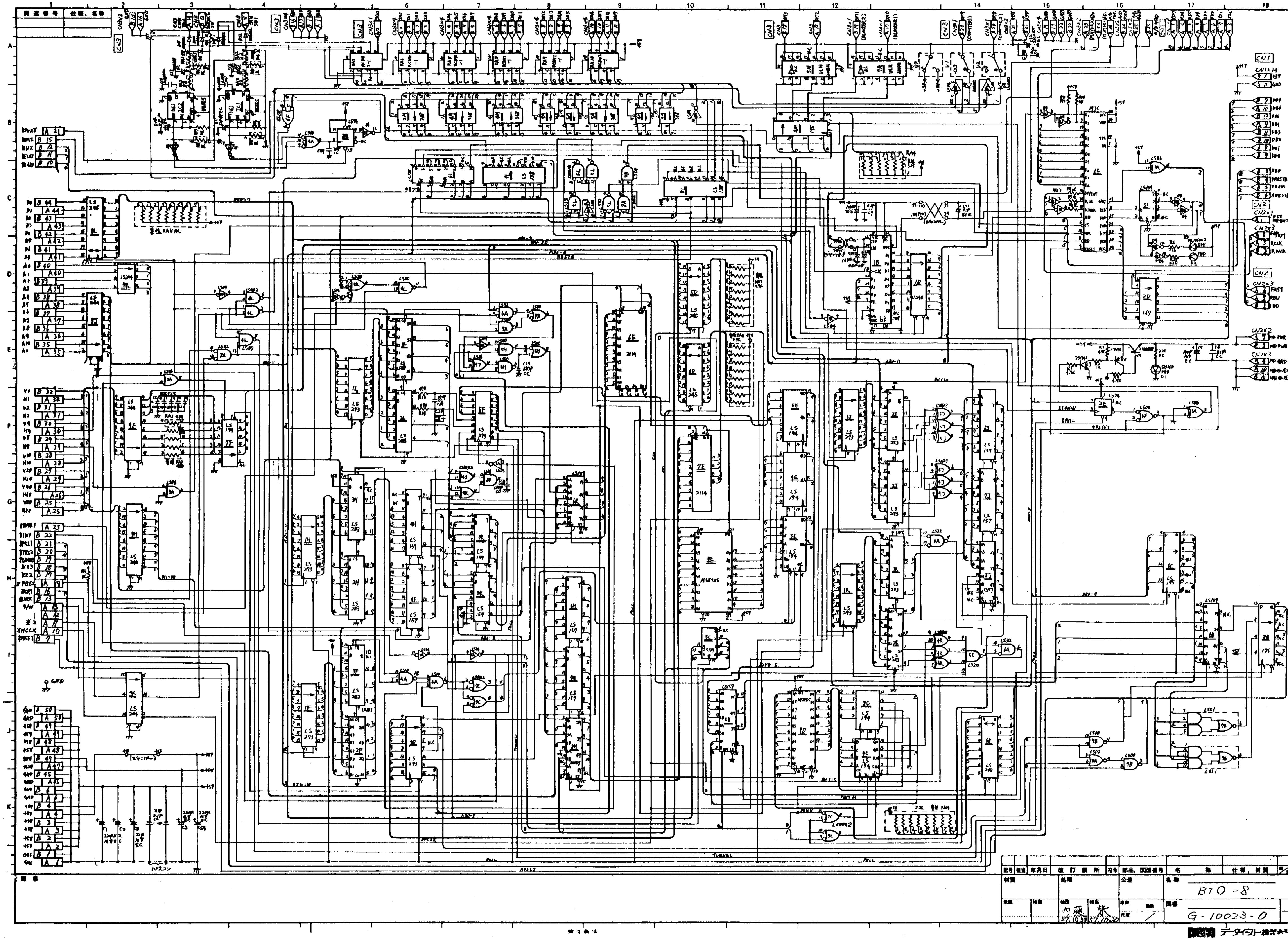
図番 K-10240

テータイコー株式会社

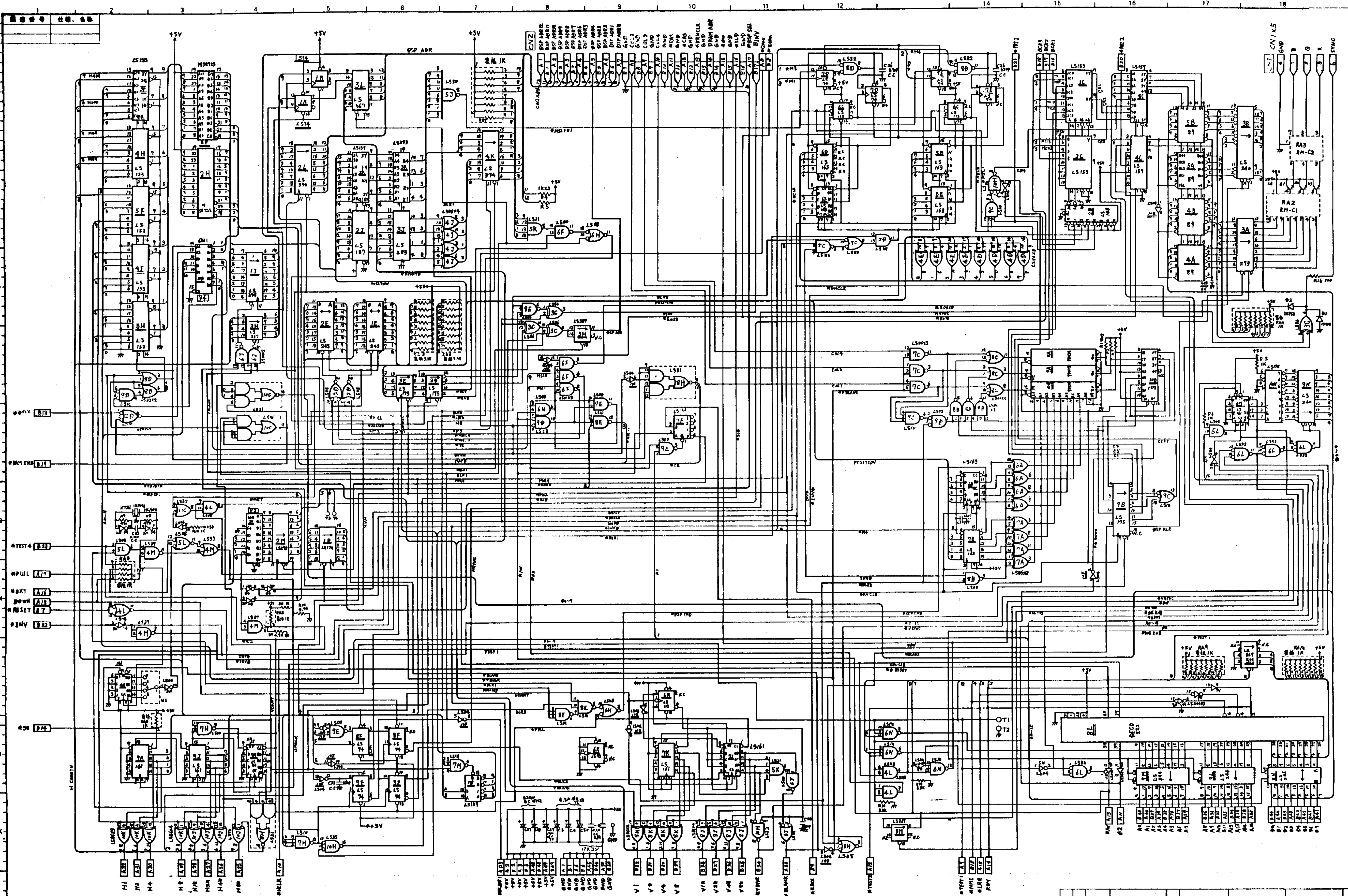
第3角法



+5V 8A
+12V 1.5A
-5V 0.5A
FG
AC2
AC1
F1 AC 250V 3A
L1
T1
L2
RC1
RC2
CR31
D31
(*) NOT PROCEEDED.
CR31, D31, C31, R32, R33
SANKEN SWS-60B
SWITCHING REGULATOR
K-10505



記号
担当
年月日
改 訂 個 所
符号
部品, 図面番号
名 称
仕様, 材質
材質
処理
公差
名称
BIO -8
検図
担当
内藤
柴
57.10.30
57.10.30
単位
尺度
/
図番
G-10023-0
データイースト株式会社

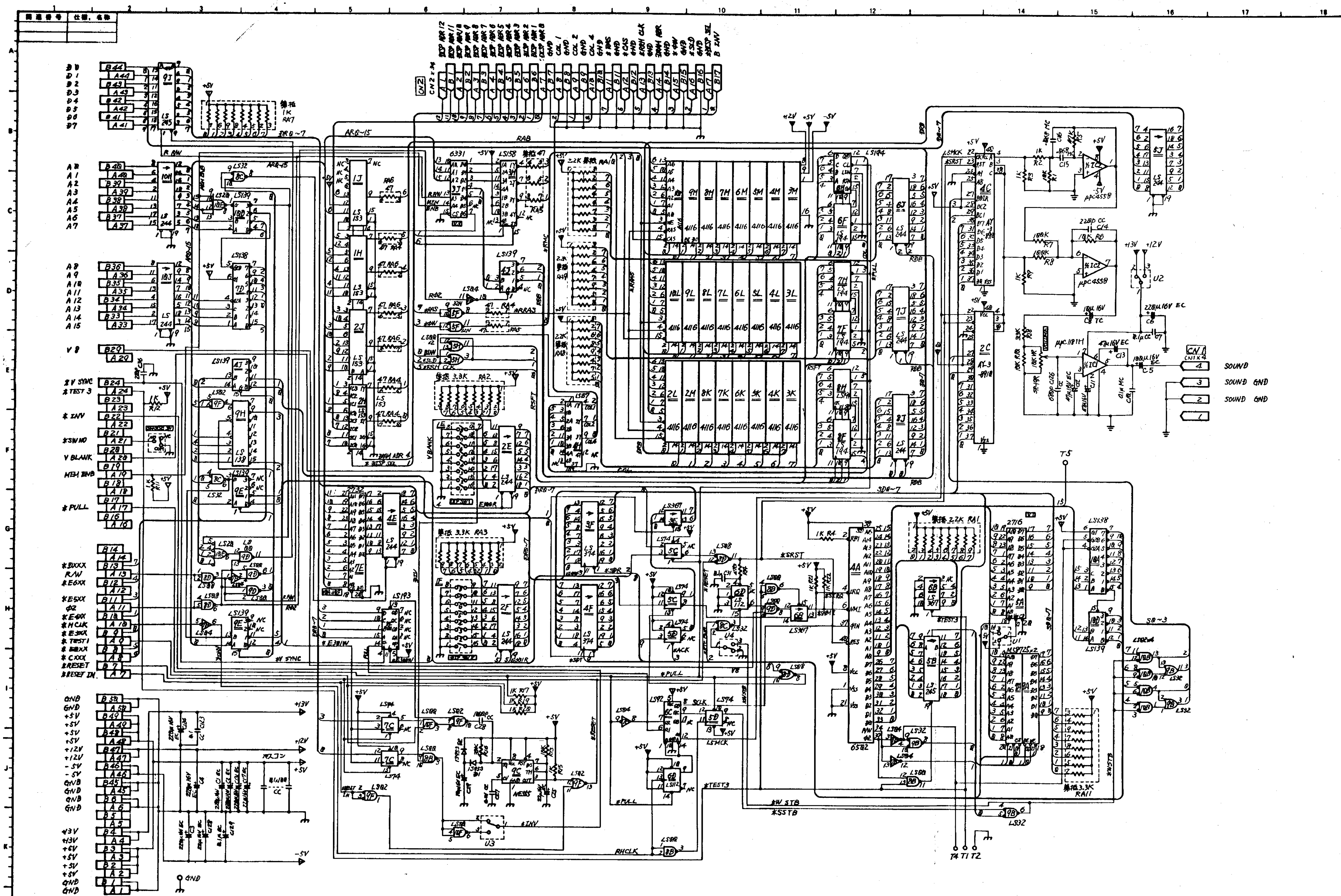



| 記号 | 担当 | 年月日 | 改訂個所 | 符号 | 部品, 図面番号 | 名称 | 仕様, 材質 |
|---|---|---|---|---|---|---|---|

材質 | 処理 | 公差 | 名称 DSP 8

承認 | 検図 | 検図 内藤 57.10.30 | 製図 紫 57.10.30 | 単位 mm | 尺度 / | 図番 G-10022-0

DECO データイースト株式会社




| 記号 | 担当 | 年月日 | 改 訂 個 所 | 符号 | 部品, 図面番号 | 名 称 | 仕様, 材質 |
|---|---|---|---|---|---|---|---|

材質 | 処理 | 公差 | 名称 RMS-8

承認 | 検図 | 検図 内藤 57.10.30 | 製図 紫 57.10.30 | 単位 mm | 尺度 / | 図番 G-10024-0

データイースト株式会社